

Prepared For:

Georgia Department of
Transportation



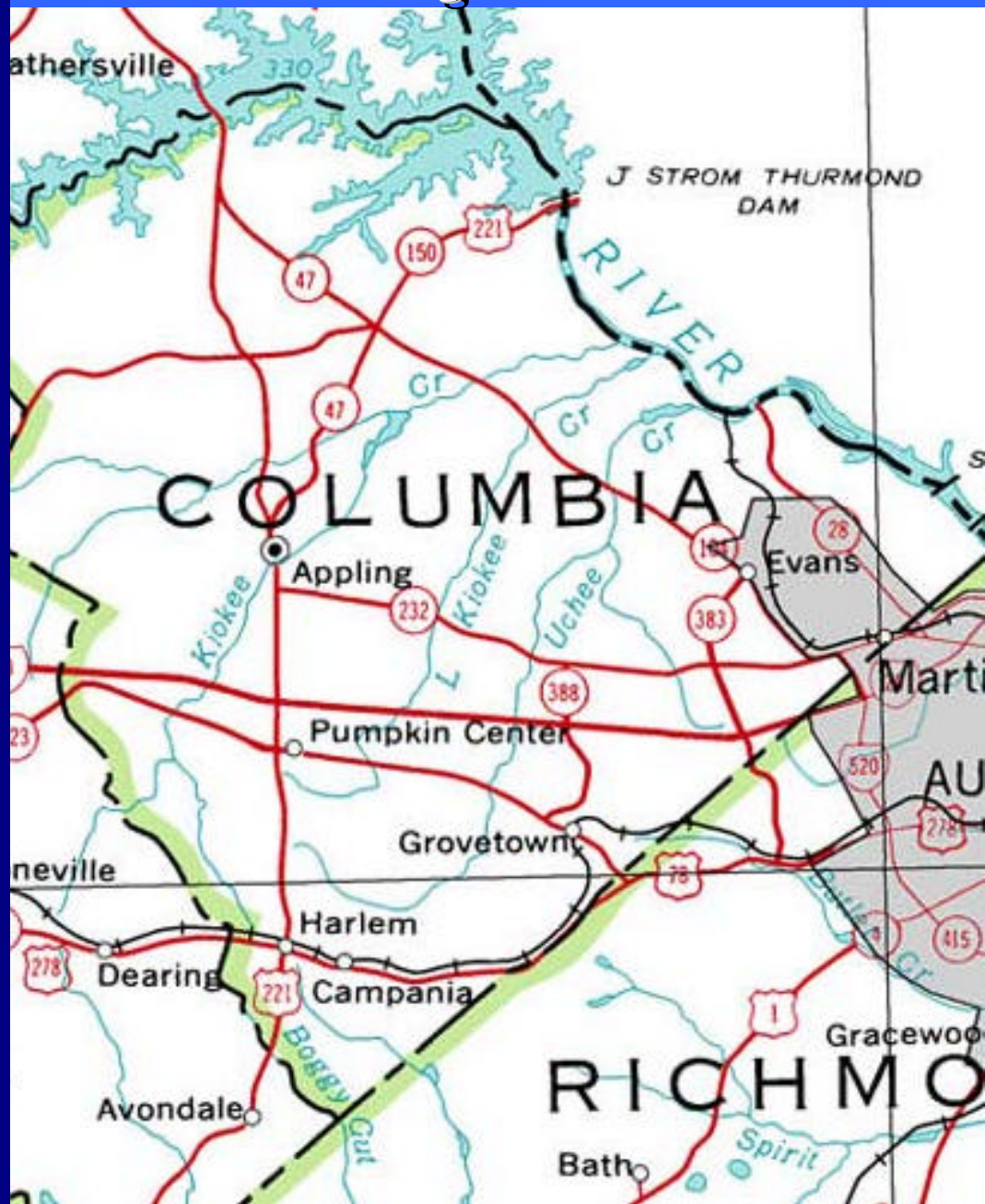
Columbia County Planning
and Development Services
Department



Columbia County

2025 Long Range Transportation Plan

Existing Conditions



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Table of Contents

	<u>Page</u>
1.0 Introduction	1
1.1 Study Purpose	1
1.2 Study Area Description.....	2
1.3 Existing Conditions Report.....	4
2.0 Previous Studies	5
2.1 Columbia County 2020 Growth Management Plan.....	5
2.2 Augusta Regional Transportation Study 2015 Long Range Plan with Extension to the Year 2020.....	7
2.3 Augusta Regional Transportation Study Congestion Management System.....	8
2.4 Augusta Regional Transportation Study - Regional Bicycle and Pedestrian Plan.....	8
2.5 Georgia Department of Transportation Statewide Bicycle and Pedestrian Plan (GABPP)	10
2.6 Georgia Department of Transportation Statewide Transportation Plan / Six Year Work Program	11
3.0 Land Use	15
3.1 Existing Land Use Characteristics	15
3.2 Future Land Use Characteristics.....	18
4.0 Demographic Information.....	21
4.1 Demographic Characteristics.....	22
4.2 Employment Change	31
5.0 Rural Transit	33
6.0 Freight and Rail	34
7.0 Airports	36
8.0 Bicycle and Pedestrian	37

9.0	Bridges	39
10.0	Safety.....	42
11.0	Deficient Segments	45
11.1	Existing Operating Conditions	45
11.2	Future Operating Conditions	49
12.0	Summary	54

List of Figures

<u>Figure</u>	<u>Page</u>
1.2 Study Area	3
2.1 Development Opportunities	6
2.6 GDOT Planned & Programmed Projects.....	14
3.1 Existing Land Use.....	17
3.2 Future Land Use	20
4.1.1 Percent Population Change (1990 – 2000) by Census Block Group	23
4.1.2 Minority Population Locations by Census Block Group	25
4.1.3.1 Low-Income Population Locations by Census Block Group	27
4.1.3.2 Overlay of Minority and Low-Income Populations	28
4.1.4 Future Population Growth by Census Block Group	30
8.0 Bicycle and Pedestrian Improvement Priority Areas	38
10.0 High Crash Locations	44
11.1.1 Existing Peak Hour Deficient Segments	47
11.1.2 Existing Daily Deficient Segments	48
11.2.1 Future Peak Hour Deficient Segments	52
11.2.2 Future Daily Deficient Segments.....	53

List of Tables

<u>Table</u>	<u>Page</u>
2.4 Bicycle and Pedestrian Improvements	9
2.6 2004 – 2006 STIP and GDOT Listing of Projects by County	13
4.0 Existing General Demographic Characteristics	21
4.1.4 Historical Population Profile	29
4.2.1.1 Existing Industry Jobs.....	31
4.2.1.2 Existing Work Commute Patterns	32
6.0 Freight Companies	34
9.0 Bridge Inventory	39
3.5 High Crash Intersections	42
11.1 Existing Deficient Segments	46
11.2 Future Deficient Segments	49

1.0 Introduction

Due to population growth in Columbia County and the resulting increase in travel demand, the Georgia Department of Transportation (GDOT) Office of Planning in conjunction with Columbia County initiated a study to develop a Long Range Transportation Plan (LRTP) to serve the entire County through the planning horizon, 2025. Currently only the eastern portion of Columbia County is included in the Augusta Richmond County Metropolitan Planning Organization (MPO) area and the Augusta Richmond MPO has been conducting the transportation planning function. The intent of this study, though, was to develop a comprehensive transportation plan for all of Columbia County.

As part of this effort a travel demand model was developed to include the portion of the County not currently served by the Augusta-Richmond County Metropolitan Planning Organization (MPO). This area primarily consisted of the non-urbanized portion of the County. This model, named the “Columbia Model”, is an extension of the existing Augusta-Richmond Transportation Study (ARTS) model and was used to evaluate existing future travel conditions through Columbia County. The purpose of this study was to identify existing and future operating conditions for the transportation system within Columbia County. Ultimately the study identified multimodal improvements and prioritized project implementation in a Long Range Transportation Plan for the County.

TEI coordinated with GDOT, Columbia County, cities within the County and other partners in the planning, development, review, and approval of study alternatives and the LRTP. Additionally, a comprehensive and interactive public involvement program was conducted to ensure that alternative transportation improvements were not only coordinated with various governments, but afforded individual citizens and interested groups the opportunity to provide their input in developing and evaluating planned improvements to the transportation network.

The end product for this study was a Long Range Transportation Plan (LRTP) that provided for the efficient movement of people and goods within and through Columbia County through the horizon year of this study (2025). Interim year analysis was conducted for the years 2007 and 2012. As part of this effort existing and future operating conditions were documented for the following modes: highways, bicycle and pedestrian improvements, freight, transit, railways and airports.

1.1 Study Purpose

While Columbia County is not entirely within an MPO service area, the transportation plan development process followed the guidelines established for MPOs. This more rigorous process established a strong framework for transportation planning and decision-making. The format of the LRTP, and the process by which it was developed, is prescribed by federal legislation known as the Transportation Efficiency Act for the 21st Century (TEA-21). Each MPO is responsible for developing a Long Range

Transportation Plan every five years. The purpose of the LRTP is to identify long-range transportation needs, determine resources to meet those needs, and outline a framework of projects that meet the transportation needs of a community to the extent allowed by existing and future resources.

Long range transportation plans have a typical planning horizon of 20 or more years. This time frame provides a basic structure and overall goal for meeting the long-term transportation needs for the community. Since many factors influencing the development of the long-range plan, such as demographics, forecast revenue, and project costs, change over time, long-range transportation plans are updated at least every five years.

The Existing Conditions Report forms the foundation for the technical analyses completed as part of the Long Range Transportation Plan development process. Evaluation factors were established to assess the existing transportation network. Deficiencies and operating conditions were then documented and ultimately used to develop the recommended improvements for the Columbia County Long Range Transportation Plan.

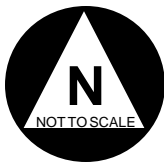
1.2 Study Area Description

Columbia County has experienced a moderate rate of population growth over the past several years. Some of this growth is the result of in-migration to the Augusta-Columbia County region; however, a significant percentage of the growth is attributable to residents leaving Augusta and Richmond County and relocating to Columbia County. It is anticipated that this trend will continue transforming parts of Columbia County into “bedroom communities” for Augusta. This development pattern has stressed existing transportation facilities linking Columbia County to Augusta area employment centers, resulting in congested east-west facilities including I20, Washington Road, Columbia Road and the Bobby Jones Expressway to name a few.

It is anticipated that this growth pattern will continue heightening the need for an integrated multimodal transportation system to move people and goods efficiently through Columbia County.

The study area is displayed in Figure 1.2.

Lincoln
County



South
Carolina

Mistletoe State Park

Wildwood Park

Riverside Park

Appling
Town Center

Greenbrier
Town Center

Columbia
County

Patriots Park

Reed Creek Park

Roberts Field

Augusta

Evans
Town Center

McDuffie
County

Harlem
Town Center

Goodale Park

Grovetown
Town Center

Richmond
County

Ft. Gordon

1.3 Existing Conditions Report

This document summarizes the data collection efforts that were used to: assess existing conditions; identify deficiencies; and, identify and evaluate potential improvement alternatives. Key analysis elements are summarized in the following general areas:

- Previous Studies;
- Land Use;
- Demographic Information;
- Rural Transit;
- Freight and Rail;
- Airports;
- Bicycle and Pedestrian;
- Bridges;
- Safety; and,
- Deficient Segments.

Detailed summary information for all analysis elements is provided in the following sections. It is within this framework that the existing conditions data was identified for collection, analyzed and a baseline condition established for the transportation system within Columbia County.

2.0 Previous Studies

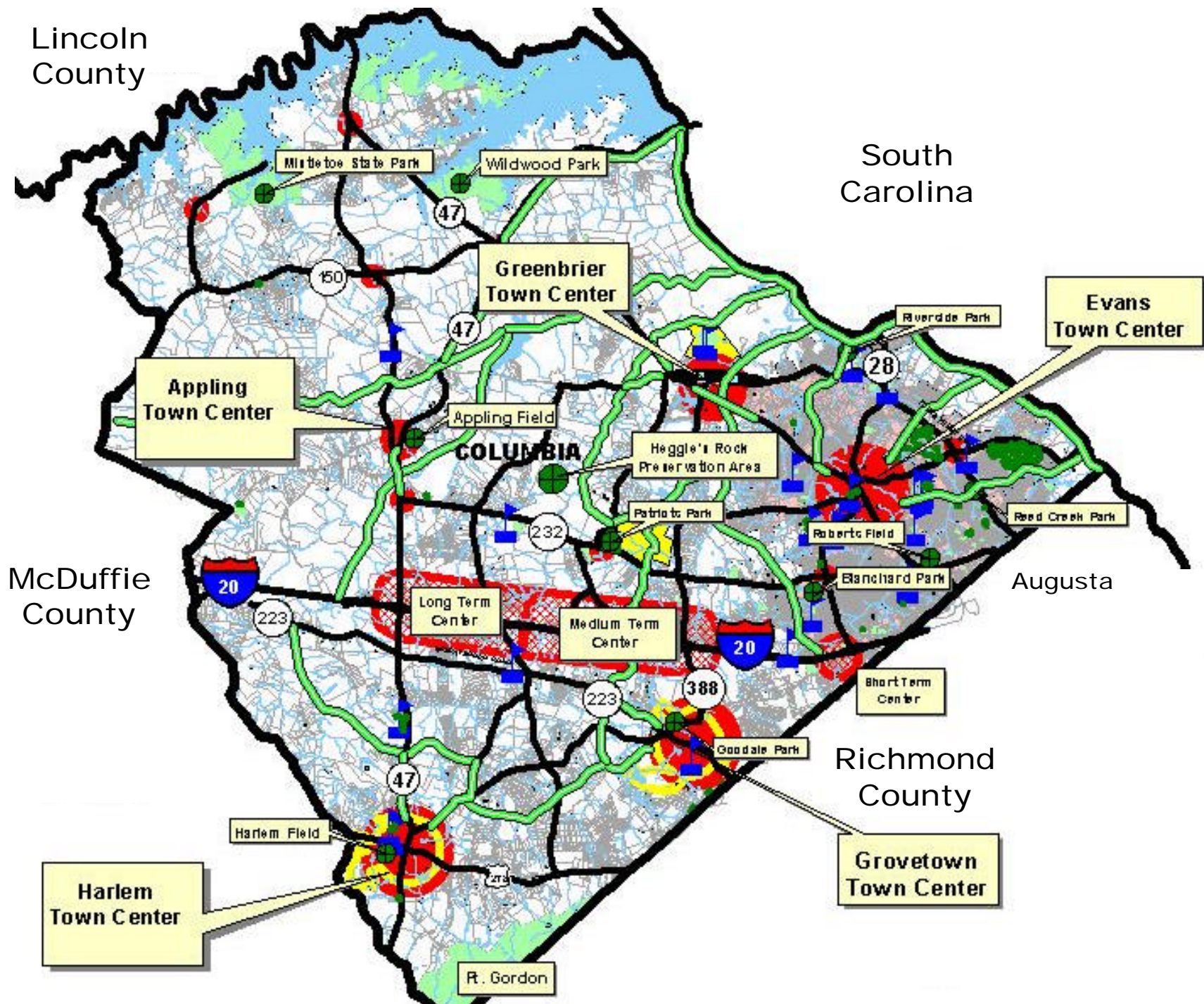
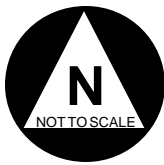
An effective Transportation Plan coordinates with other planning efforts to ensure synergy between planning documents and to ensure that goals and related projects for the transportation system are consistent with the established community vision. Several studies have been conducted involving Columbia County and were reviewed as part of the existing conditions analysis. However, previous transportation studies conducted for Columbia County were limited to portions of the County within the urbanized area of Augusta. In this area transportation planning functions were typically provided by the Augusta-Richmond Metropolitan Planning Organization (MPO). The following planning studies were reviewed and key results summarized: Columbia County 2020 Growth Management Plan; Augusta Regional Transportation Study 2015 Long Range Transportation Plan with Extension to 2020; Augusta Regional Transportation Study Congestion Management System; Augusta Regional Transportation Study – Regional Bicycle and Pedestrian Plan; Georgia Department of Transportation Statewide Bicycle and Pedestrian Plan; and, the Georgia Department of Transportation Statewide Transportation Plan/Six Year Work Program.

2.1 Columbia County 2020 Growth Management Plan

The Columbia County Growth Management Plan communicates a vision for the future based on a strategy of focused growth in clearly identified development nodes located throughout the County. By actively concentrating future development in pre-selected strategic locations, the intent is to create a series of community centers where inevitable growth is managed and where new development is encouraged to integrate living, working, shopping and playing in close proximity to one another. While this approach is fundamentally pro-growth in nature, it seeks to preserve the existing rural character prevalent in the western half of the County, to protect valuable natural resources, and to enhance the quality of life in this thriving community. Furthermore, this strategy of directed development strives to maximize the efficient and economical provision of county services and community facilities by coordinating development efforts with service areas.

It is acknowledged that opportunities for successfully implementing this strategy are greatest in the underdeveloped areas of the County where the existing “clean slate” minimizes obstacles to integrated land uses within a comprehensive system of vehicular and pedestrian circulation. However, within the urbanized areas of the County, particularly Martinez-Evans, this strategy is equally valid as a means to mitigate the negative impact of unchecked commercial development along established major corridors by focusing on urban design initiatives that would enhance the public environment, link established uses, and protect diminishing open space.

Figure 2.1 shows areas of opportunity of development.



2.2 Augusta Regional Transportation Study 2015 Long Range Plan with Extension to the Year 2020

The Augusta Regional Transportation Study was reviewed to determine project recommendations for the Columbia County study area. The following projects were identified as part of this planning effort:

- Old Petersburg/Baston Road – Widen from Riverwatch Parkway to Washington Road;
- Baston Road – Widen from south of Fury’s Ferry Road to Old Petersburg Road;
- Washington Road – Widen from near CR 515 to near CR 80;
- Flowing Wells Road – Widen from Washington Road to I-20 at Wheeler Road;
- Washington Road – Widen from near CR 91 to near CR 515;
- Old Petersburg Road – Widen and New Construction from Baston Road to SR 104;
- Columbia Road – Widen from Crawford Creek to CR 223;
- SR 223 – Widen from Gordon Highway to Wrightsboro Road;
- William Few Parkway – Construct from Washington Road to Hardy McManus;
- North Belair Road Ext. – Realign intersection at Industrial Park Drive;
- North Belair Road – Widen from Washington Road to Fury’s Ferry Road;
- Lewiston Road – Widen from Columbia Road to South of I-20;
- Washington Road – Install Median from Flowing Wells Road to Halali Farm Road;
- Parham Road – Construct Rail Overpass;
- Fury’s Ferry Road – Widen from Riverwatch Parkway to Evans to Locks Road;
- Gordon Highway – Widen from SR 223 to CR 528;
- Stevens Creek Road – Widen from Washington Road to Evans to Locks Road;
- Wrightsboro Road – Widen from Belair Road to SR 223; and,
- New Frontage Road – Widen and new Construction from Flowing Wells Road to Bobby Jones Expressway.

These projects served as baseline for developing improvements to address deficiencies identified as part of the planning process conducted as part of this study. The bicycle and pedestrian projects included in the Augusta Regional Transportation Study were used in conjunction with the ARTS Bicycle and Pedestrian Plan recommended projects. This information is documented in the Bicycle and Pedestrian section of this report, Section 2.4.

Additionally the Goals and Objectives established for the ARTS 2020 Long Range Transportation Plan were documented to serve as a starting point for development of Goals and Objectives for the Columbia County Long Range Transportation Plan. Synergy between these two planning documents is required to facilitate transportation planning at the regional level. However, it is recognized that the Goals and Objectives developed for the Columbia County Transportation Plan will focus primarily on conditions related to Columbia County and secondarily for regional conditions outside of Columbia County.

2.3 Augusta Regional Transportation Study Congestion Management System

Congestion Management Systems (CMS) are used to inventory current operating conditions, usually focusing on major corridors. The main source of information for CMS is through travel time and delay studies. These studies evaluate the time vehicles spend on a segment under travel and delay conditions. Systems with large amounts of delay should be flagged for potential improvements.

ARTS completed a Congestion Management Report for 2001. In this report, travel time surveys were completed for Columbia County and compared to established performance measures. Several roads in Columbia County were considered congested. The following list highlights the congested roadways:

- Columbia Road;
- SR 223;
- Bobby Jones Expressway;
- Belair Road; and,
- Old Evans Road.

2.4 Augusta Regional Transportation Study - Regional Bicycle and Pedestrian Plan

As part of the Augusta Richmond Transportation Study (ARTS), which serves the urbanized portion of Columbia County, a Bicycle and Pedestrian Plan was recently completed. The Plan recommends additional facilities for Columbia County including installation of “Share the Road” signs, restriping existing bicycle lanes, and creating new bicycle lanes along roadways. Table 2.4 displays the recommended bicycle and pedestrian facilities for Columbia County.

Table 2.4
Bicycle and Pedestrian Improvements

Year	Location	Description	Facility Type	Linear Feet
2013	Columbia Rd	From Belair Rd to Lewiston Rd	Rural Bike Lane	18,790
2008	Ronald Reagan Dr	From Washington Rd to N Belair Rd	Urban Bike Lane	2,131
2013	Cox Rd/Gibbs Rd	From Washington Rd to Hereford Farm Rd	Urban Bike Lane	7,450
2013	Wrightsboro Rd	From S Belair Rd to Study Area Boundary	Share the Road	33,730
2018	Columbia Rd/SR 232	From Hereford Farm Rd to Study Area Boundary	Share the Road	35,965
2018	Belair Rd/SR 383	From Washington Rd to Wrightsboro Rd	Restriping	25,403
2013	William Few Pkwy	From Columbia Rd to Washington Rd	Rural Bike Lane	27,826
2008	Old Petersburg Rd/CR 145	From Washington Rd/Old Evans to Riverwatch Pkwy	Urban Bike Lane	12,985
2008	Washington Rd/Old Evans Rd/CR 176	From Belair Rd to Old Petersburg Rd	Urban Bike Lane	6,496
2013	Baston Rd	From Old Petersburg Rd to Fury's Ferry Rd	Restriping	3,873
2008	N. Belair Rd/CR 580	From Washington Rd to Fury's Ferry Rd	Restriping	13,078
2008	Hardy McManus Rd	From Washington Rd to Fury's Ferry Rd	Rural Bike Lane	20,272
2018	Flowing Wells Rd	From Columbia Rd to Wheeler Rd	Urban Bike Lane	7,408
2018	Wheeler Rd	From S Belair Rd to Flowing Wells Rd	Share the Road	7,290
2018	Washington Rd/SR 104: Phase III	From Study Area Boundary to Cumberland Dr	Rural Bike Lane	14,866
2008	Washington Rd/SR 104: Phase II	From Cumberland Dr to Silver Lake Dr	Rural Bike Lane	12,936
2008	Washington Rd/SR 104: Phase I	From Silver Lake Dr to Ronald Reagan	Rural Bike Lane	10,402
2013	SR 388/Lewiston Rd	From Wrightsboro Rd to Columbia Rd	Rural Bike Lane	29,884
2008	Hereford Farm Rd	From Columbia to Belair Rd	Rural Bike Lane	19,586
2008	Evans-To-Locks Rd: Phase II	From existing facility to Blue Ridge Dr	Multiuse	7,119
2008	Evans-To-Locks Rd: Phase III	From Blue Ridge Dr to Belair Rd	Multiuse	7,647
2018	Fury's Ferry Rd/CR 92: Phase II	From Hardy McManus to Blackstone Camp Rd	Urban Bike Lane	12,069
2018	Fury's Ferry Rd/CR 92: Phase III	From Hardy McManus to County Line	Rural Bike Lane	6,959
2018	Columbia Rd	From Belair Rd to Flowing Wells Rd	Urban Bike Lane	10,938
2013	Pleasant Home Rd/CR 177	From Flowing Wells to Washington Rd	Restriping	16,534
2008	Walton Way Extension/Davis	From Skinner Mill to Washington Rd	Restriping	8,025

2.5 Georgia Department of Transportation Statewide Bicycle and Pedestrian Plan (GABPP)

The following information was excerpted from the Georgia Department of Transportation Bicycle and Pedestrian Plan and generally describes the history and purpose and goals for the Plan.

“In August 1995, the State Transportation Board adopted several goals to guide the development and implementation of a statewide bicycle and pedestrian system. These goals are listed below.

- Promote non-motorized transportation as a means of congestion mitigation.*
- Promote non-motorized transportation as an environmentally friendly means of mobility.*
- Promote connectivity of non-motorized facilities with other modes of transportation.*
- Promote bicycling and walking as mobility options in urban and rural areas of the state.*
- Develop a transportation network of primary bicycle routes throughout the state to provide connectivity for intrastate and interstate bicycle travel.*
- Promote establishment of U.S. numbered bicycle routes in Georgia as part of a national network of bicycle routes.*

Encourage economic development opportunities that enhance bicycle and pedestrian mobility.”

History

“The State Transportation Board approved the GABPP on August 21, 1997. It focuses on the goal of developing a statewide primary route network while addressing each of the other goals. The network contains 14 routes totaling 2,943 miles. A statewide advisory committee consisting of staff from GDOT Districts, the Federal Highway Administration, Metropolitan Planning Organizations, Regional Development Centers, the Association of County Commissioners of Georgia, the Georgia Municipal Associations, local planning departments, bicycle clubs, and other state agencies evaluated each proposed corridor and defined routes.

In evaluating routes, a variety of factors relating to the appeal and safety of a roadway for bicycling and pedestrian usage were considered. The factors included: accident history; total traffic volumes & truck volumes; speeds; shoulder and travel lane width; pavement condition; network connectivity; access to cities & to major points of interest; aesthetics; and the presence of potentially hazardous spot conditions. While bicyclists are seen as the primary users of this route network, pedestrians will benefit as pedestrian

friendly designs are used in urban areas and paved shoulders are constructed on rural sections.”

Strategy

“Route development complemented and supplemented other transportation programs and projects already planned or underway. Projects can be "tagged" within GDOT's database to alert engineers that non-limited-access roadway and/or bridge design plans should accommodate bicyclists and pedestrians. The scale of the network requires phased implementation. The first step, to be accomplished within the next five years, is to sign each of the 14 routes detailed in this plan.

At the present time, GDOT does not anticipate dedicating funds exclusively for physical improvements such as repaving or widening outside travel lanes specifically to accommodate bicyclists nor improving sidewalks and crosswalks for pedestrians. Rather, GDOT will implement internal procedures so that designers incorporate bicycle and pedestrian friendly elements into programmed improvement projects as they move through the design and construction stages.

This approach of providing extra curb lane width, wide, paved shoulders, bike lanes, and sidewalks routinely during construction or reconstruction activities will translate into nearly all of the network being designed to standards that allow the safe and efficient movement of bicyclists, pedestrians, and motorists within the next 20 years.”

The Georgia Department of Transportation Statewide Bicycle and Pedestrian Plan was reviewed to identify proposed facilities through Columbia County. One route was identified through Columbia County as part of the GABPP – the Augusta Link Corridor which generally extends along segments of the following roads south of I-20: SR223, Cedar Grove Church Road; US221; Old Union Road; Euchee Creek Greenway and Trails; and, Wrightsboro Road into Richmond County.

2.6 Georgia Department of Transportation Statewide Transportation Plan / Six Year Work Program

In addition to current studies there are several planned and programmed improvements along roadways in Columbia County. Programmed improvements refer to projects included in the State Transportation Improvement Program (STIP) within the first three years of the planning horizon – 2004, 2005, and 2006 with a dedicated funding source established and programmed. Planned projects refer to projects included in the Six Year Construction Work Program (CWP) but extend beyond the first three years of the planning horizon and have no dedicated funding source identified or programmed to facilitate project completion. The following list highlights the general types of programmed improvements for Columbia County:

- Signal Improvements / Signal System / Traffic Management
- Bridge Rehabilitation / Replacement
- Railroad Crossing Safety Improvements
- Bicycle and Pedestrian Enhancements
- Passing Lanes
- Roadway Widening (Washington Road, Davis Road, Old Petersburg Road)

The following is a list of planned improvements for Columbia County:

- Bridge Rehabilitation / Replacement
- Passing Lanes
- Roadway Widening
- Intersection Improvements
- New Roadways (William Few Parkway Extension)

The STIP and CWP were reviewed for projects within and impacting the study area. This study was conducted over a 1-year time frame, and over this period the STIP and Construction Work Program were updated to reflect the most current conditions. These changes had a minimal impact to the study. The projects with capacity enhancements remained the same, however some of the program dates were modified slightly. Table 2.6 displays the information from the latest planned and programmed improvements lists. Additionally, the projects included in this table are mapped in Figure 2.6. Projects included in the STIP were carried forward and included in the existing conditions network for analysis of future (beyond 2006) transportation scenarios.

Table 2.6
2004 – 2006 STIP and
GDOT Listing of Projects by County

Project Id	Prime Work Type	Description	STIP	Program Date
0000477	Widening	SR 47 from Pollard's Corner to Lincoln County	No	Long Range
0000766	Interchange	I-20 Safety Upgrades @ SR 47; SR388/Columbia & SR 150/McDuffie	Yes	2005
0000809	Bridges	SR 232 @ Crawford Creek 4.4 mi NE of Grovetown	Yes	2004
0002286	TEA Sidewalks	Harlem Downtown Walkway revitalization (multi-modal)	No	Long Range
0003662	Intersection Improvement	SR 104/Washington Road @ CR 99/Gibbs Road	Yes	2004
0004732	Intersection Improvement	SR 47 @ SR 223	No	Long Range
210570-	Widening	I-20 from Belair Rd/Columbia Co to Riverwatch Parkway/Richmond	Yes	2006
221790-	Widening	SR 10/US 78 Gordon Hwy from 4-Lane in Harlem to SR 223	No	Long Range
221800-	Widening	SR 104 from mp 11.95 SE/CR 80 to NW of SR 47 @ Pollards Corner	No	Long Range
221805-	Widening	SR 104 from mp 8.95 S of CR 515 to mp 11.95 S of CR 80	No	Long Range
222140-	Passing Lanes	SR 47 NB mp 8.33-9.53; SB and NB mp 13.48 - 15.18	Yes	Long Range
227805-	ATMS/ITS	ATMS/ I-20 Communication/Surveillance from SR 388/Columbia to SC	No	2007
227810-	ATMS/ITS	ATMS/ Augusta/Richmond County/GDOT Regional TCC	No	2004
231350-	Passing Lanes	SR 47 SB from mp 2.45 Near Keg Creek South to mp 3.88	Yes	2004
231440-	Widening	SR 232 from Old Belair Rd/CR 221 to Belair Rd/SR 383	Yes	After 2006
231710-	Access Management	Install raised median on Washington Road from Flowing Wells Road to Halali Road	No	Long Range
232305-	Bridges	SR 47 @ Keg Creek 6.9 mi N of Appling	Yes	2006
232306-	Bridges	SR 223 @ Uchee Creek 2.2 mi NW of Grovetown	Yes	After 2006
245200-	Widening	North Belair Rd/CR 580 from SR 104 @ SR 383 to SR 28/Fury's Ferry Rd	No	Long Range
245205-	Bridges	CR 580/North Belair Road @ CSX Railroad SW of SR 28	No	Long Range
250470-	Widening	Old Petersburg Rd/Old Evans from Baston Rd to Washington Rd	Yes	After 2006
250560-	Widening	Davis Rd from Skinner Mill to Washington Rd & I-20 Half Diamond	Yes	2004
250600-	Widening	Flowing Wells Rd/SR 1017 from I-20 to Washington Rd in Augusta	Yes	After 2006
250620-	Roadway Project	William Few Parkway Extension from SR 104 to Hardy-McManus Rd	No	Long Range
262080-	Widening	SR 104 from SR 383 to E/CR 515 (Includes Bridges)	No	Long Range
271040-	Bridges	Parham Rd/CR 1314 @ CSX Railroad #279479t to SR 10/US 78	Yes	2004
811062-	Weigh Station	Upgrade I-20 EB and WB Weigh Stations (Includes Scale Replacement)	No	2004

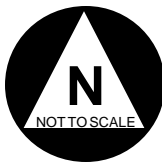
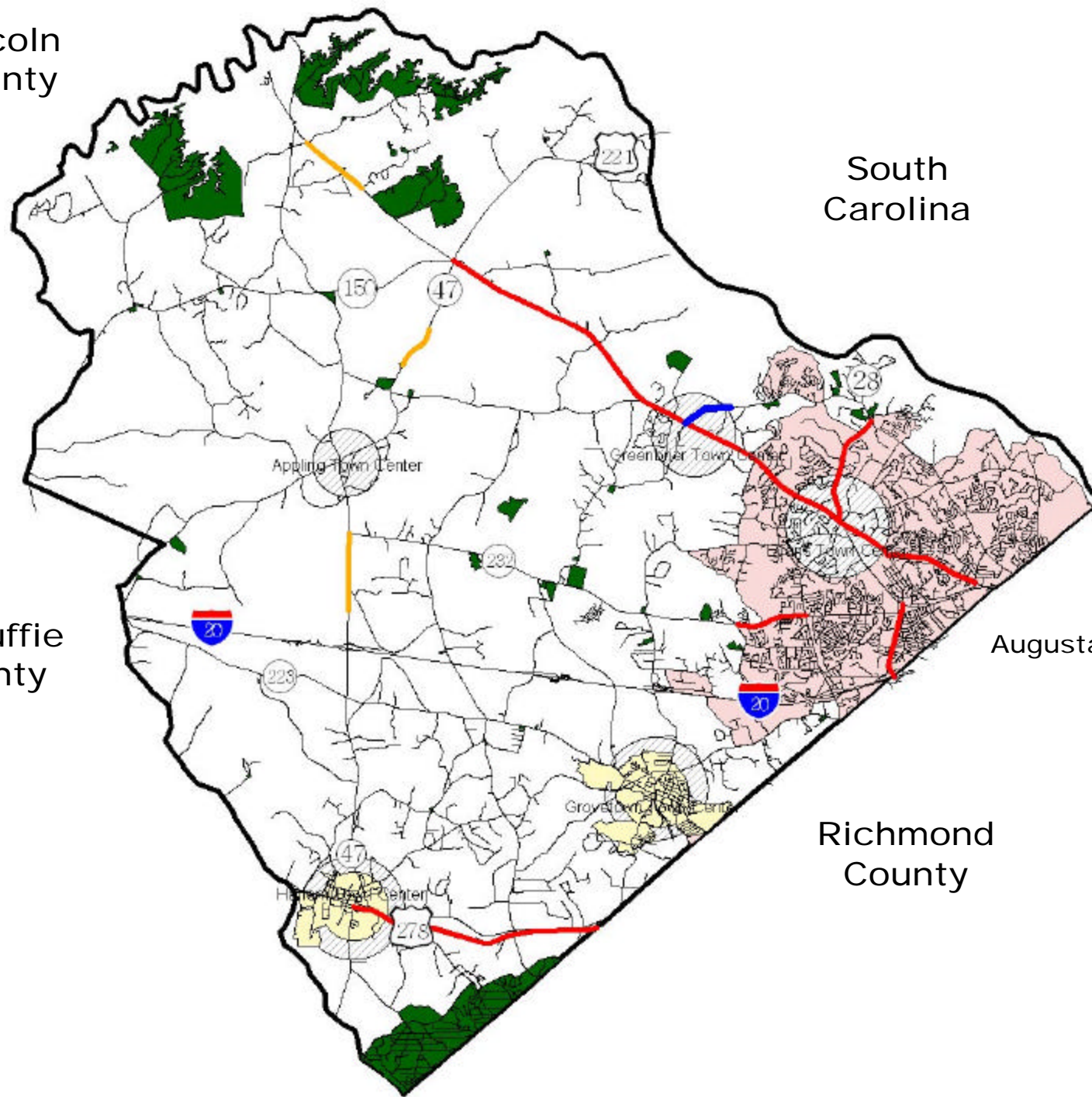
Lincoln
County

South
Carolina

McDuffie
County

Augusta

Richmond
County



Legend

- Work Type
 - Widening
 - Median
 - Passing Lanes
 - New Construction
- Local Roads
- City Boundary
- Town Center
- Urbanized Area
- County Boundary

3.0 Land Use

The existing land use for Columbia County was reviewed to determine potential impacts to the transportation system. Literature reviews show that land use, perhaps more than any other factor, contributes to impacts on the transportation system. The existing and future land use plans for Columbia County continue to show a substantial percentage of the County devoted to residential land uses. Additionally, the County does not anticipate development of major employment centers within its jurisdiction. These two factors suggest that future transportation enhancements focus on servicing travel demand to and from the metropolitan Augusta area.

3.1 Existing Land Use Characteristics

Columbia County is a partially developed county with a suburban and rural residential character and a ready supply of vacant land available for future development. Currently, many of the corridors contain convenience retail uses, along with neighborhood activity centers. It appears that adequate sites exist and are planned within the corridors to serve surrounding residential development as well as pass-by traffic. To assess the impact of existing land use on the transportation system the following types of areas were identified: major residential areas; key activity centers; key employment centers and primary travel corridors.

Figure 3.1 displays the existing land use for Columbia County.

Major Residential Areas

- Fury's Ferry Road Corridor
- Evans to Locks Road Corridor
- Hereford Farm Road Corridor
- Wrightsboro Road Corridor
- Harlem Grovetown Road Corridor
- Belair Road Corridor

Key Activity Centers

- Evans
- Martinez
- Grovetown
- Harlem
- Greenbrier
- Fury's Ferry Road Corridor
- Belair Road Corridor
- Washington Road Corridor
- Evans to Locks Road Corridor

Key Employment Areas

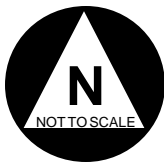
- Evans Town Center
- Martinez
- Horizon South Parkway Corridor
- Grovetown
- Washington Road Corridor (Evans to Richmond County Line)

Primary Travel Corridors

- Washington Road
- Columbia Road
- I-20
- Bobby Jones Expressway
- Fury's Ferry Road
- Evans to Locks Road
- Wrightsboro Road
- Belair Road
- Horizon South Parkway
- Lewiston Road
- Bobby Jones Expressway
- Old Evans Road
- Old Petersburg Road

Lincoln
County

South
Carolina

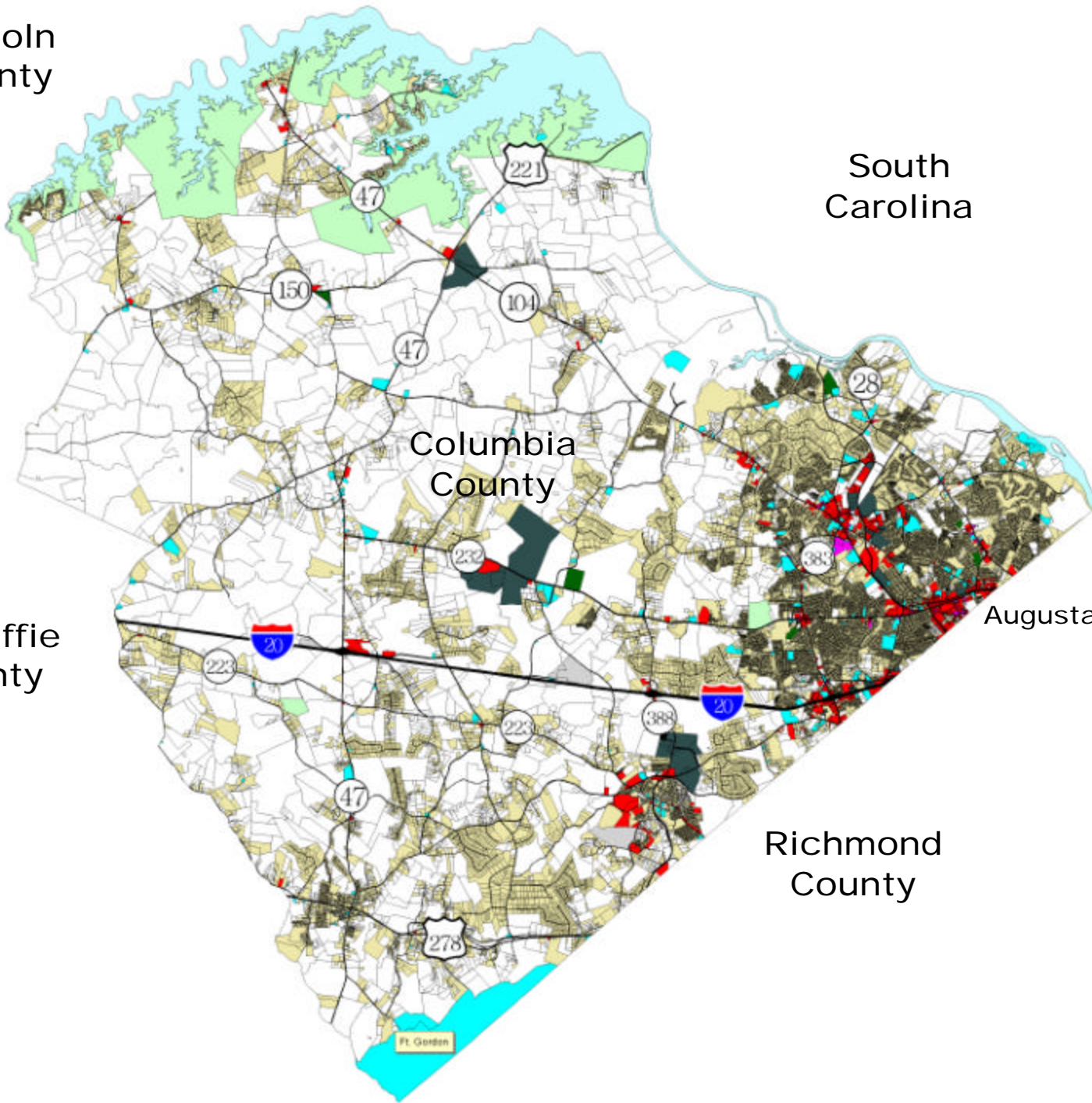


McDuffie
County

Columbia
County

Augusta

Richmond
County



Legend

- Commercial
- Industrial
- Office/Professional
- Public/Institutional
- Roads
- Recreational - Active
- Recreational - Passive
- Residential
- Trans./Communication/Utilities
- Undeveloped - Vacant Land
- Undeveloped - Water

3.2 Future Land Use Characteristics

It is important to document future land use characteristics because this information is essential in the evaluation of future travel operating conditions through the study area. The future land use identifies the location of population and employment through the horizon year of the study. These two variables are the key inputs into the travel model to predict future travel volumes and identify related deficiencies.

For the purposes of this study it was important to work with both the Future Land Use Map and the Development Opportunities Map contained in the Columbia County 2020 Growth Management Plan. These two maps identify where growth will occur in the County through the horizon year of the study. The Development Opportunities Map is particularly useful for transportation planning purposes. By clearly identifying where growth is allowed to occur in the County, it is possible for the travel model to more accurately represent trips on the road network for future years through a more accurate assignment of future population and employment information.

Of particular importance from this document was the location of sewer expansions. Columbia County identified that the portion of the County extending from Washington Road south to I-20 and bounded on the east by William Few Parkway and Hereford Farm Road and on the west by Louisville Road would be the target area for sewer service expansion. The availability of sewer service allows higher density development and the associated higher traffic volumes which was important for this study.

Another key finding from the future land use analysis is the continued presence of Fort Gordon in the southern most portion of the County. While only a fraction of the Fort is located in Columbia County, travel to and from this facility impacts the County transportation network. If Fort Gordon is closed or relocated it is very likely that travel conditions would change in the southern portion of Columbia County. Such a dramatic land use change would potentially impact facilities including Gordon Highway (US 278), Wrightsboro Road (SR 223) and Appling Harlem Road (SR 47).

To assess the impact of existing land use on the transportation system the following types of areas were identified: key activity centers and primary travel corridors.

Key Activity Centers

- Evans Town Center
- Grovetown Town Center
- Harlem Town Center
- Greenbrier Town Center
- Appling Town Center
- I-20 Development Corridor

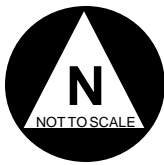
Primary Travel Corridors

- Washington Road
- Columbia Road
- Interstate 20
- Bobby Jones Expressway
- Fury's Ferry Road
- Evans to Locks Road
- Wrightsboro Road
- Belair Road
- Horizon South Parkway
- Lewiston Road
- Bobby Jones Expressway
- Old Evans Road
- Old Petersburg Road
- Appling Harlem Road
- Cobbham Road
- William Few Parkway
- Hereford Farm Road
- Gibbs-Cox-Owens Road

The generalized future land uses are shown on Figure 3.2.

Lincoln
County

South
Carolina



Columbia
County

McDuffie
County

Augusta

Richmond
County

Legend

- Agriculture/Forestry
- Commercial
- Industrial
- Office/Professional
- Public/Institutional
- Planned Development Corridor
- Roads
- Recreational - Active
- Recreational - Passive
- Residential - High Density
- Residential - Low Density
- Residential - Medium Density
- Residential - Rural
- Residential - Recreational
- Trans./Communications/Utilities
- Undeveloped - Vacant Land
- Undeveloped - Water

4.0 Demographic Information

During the past 20 years, Columbia County has seen population growth at a moderate level. Table 4.0 presents selected demographic data to more fully illustrate the characteristics of the population living in the County, their households, and other socio-economic factors. It is important to recognize that much of the in-migration to Columbia County over the past twenty years comes from within the Augusta region. Many new residents of Columbia County relocated from the Augusta Richmond County area to live in a more suburban, upscale setting with a high quality school system. However, employment has not shifted to Columbia County. The ratio of residents (89,288) to jobs (19,778) is approximately four to one based on the latest Census information. This places increased demand on the transportation system linking Columbia County to Augusta and other employment centers – all of which are located to the east of Columbia County.

The overview of Columbia County documents: demographics, historic growth, future population, existing employment, environmental justice and existing and future land use.

Table 4.0
Existing General Demographic Characteristics

Demographic	Totals
Total Population	89,288
Median Age	33.9
Households	31,112
Average Household Size	2.85
Total Housing Units	33,321
Occupied Housing Units	31,120 (93.4% of total)
Owner-Occupied Housing Units	25,557 (82.1% of total)
Renter-Occupied Housing Units	5,563 (17.9% of total)
School Enrollment (age 3 and older)	26,407 (29.6% of total)
Percent High School Graduate or Higher	87.9%
Total Disabled Population – Age 5+	12,779 (14%)
% of Population in Same House or House in the Same County in 1995	68.5%

Source: 2000 U.S. Census

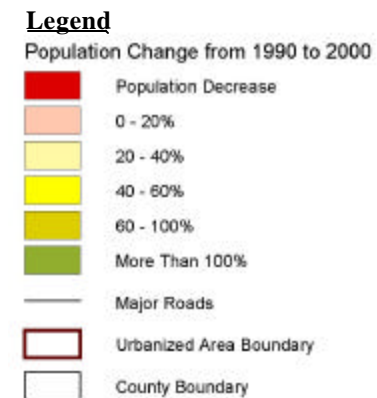
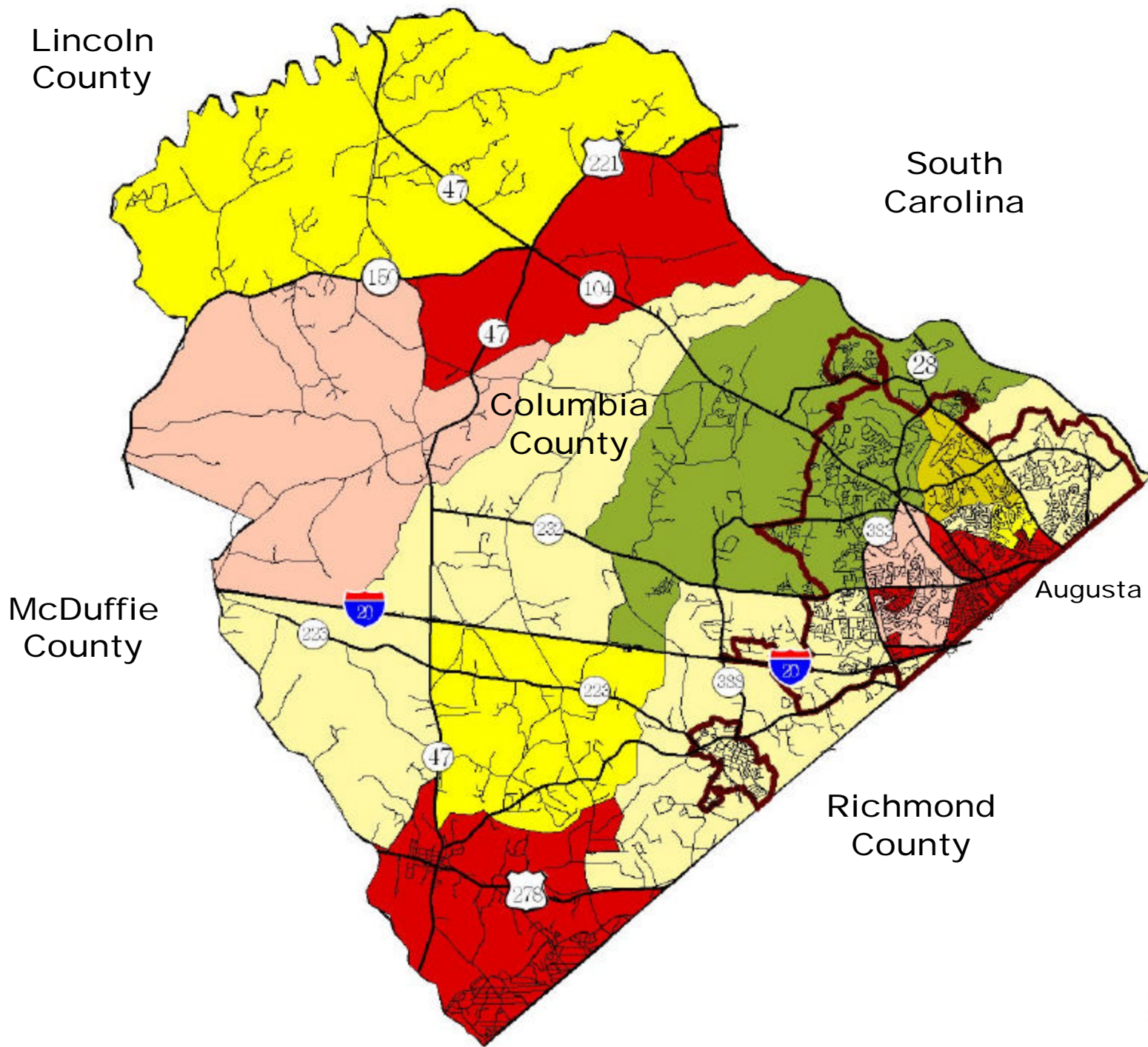
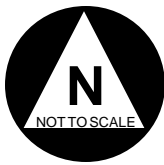
4.1 Demographic Characteristics

4.1.1 Percentage Change 1990 - 2000

The population change for Columbia County was analyzed by comparing the 1990 census data with the 2000 census data. A majority of the County experienced significant growth during this 10-year period (35%). However, there were some portions of the County that experienced small decreases in population. This is likely attributable to the fact that these census tracts had very low populations and the relocation of even a few residents resulted in a substantial percent reduction in population. It is interesting to note the population change occurring in the tracts along Washington Road adjacent to the Augusta Richmond County line. This is likely occurring as residents shift from more urbanized areas to newer developments out in suburban Columbia County.

It is anticipated that growth will continue to occur in the portions of the County that experienced 100% or greater growth over the past ten years. Currently, this is the area bounded by Belair Road and Louisville Road. This high growth area corresponds to sewer expansion and other capital projects identified and supported in the Columbia County 2020 Growth Management Plan.

Figure 4.1.1 shows the percent change of the population from 1990 to 2000 for each Census Block Group in Columbia County.



4.1.2 Percentage Minority

It is important to look at the distribution and concentration of minority and low-income populations because they are part of the environmental justice (EJ) population.

The ability to prevent discrimination and achieve environmental justice consists of a two-part process: involving the public early and continuously through the decision making process; and, using data to analytically assess if there would be a disproportionate impact on traditionally underrepresented communities.

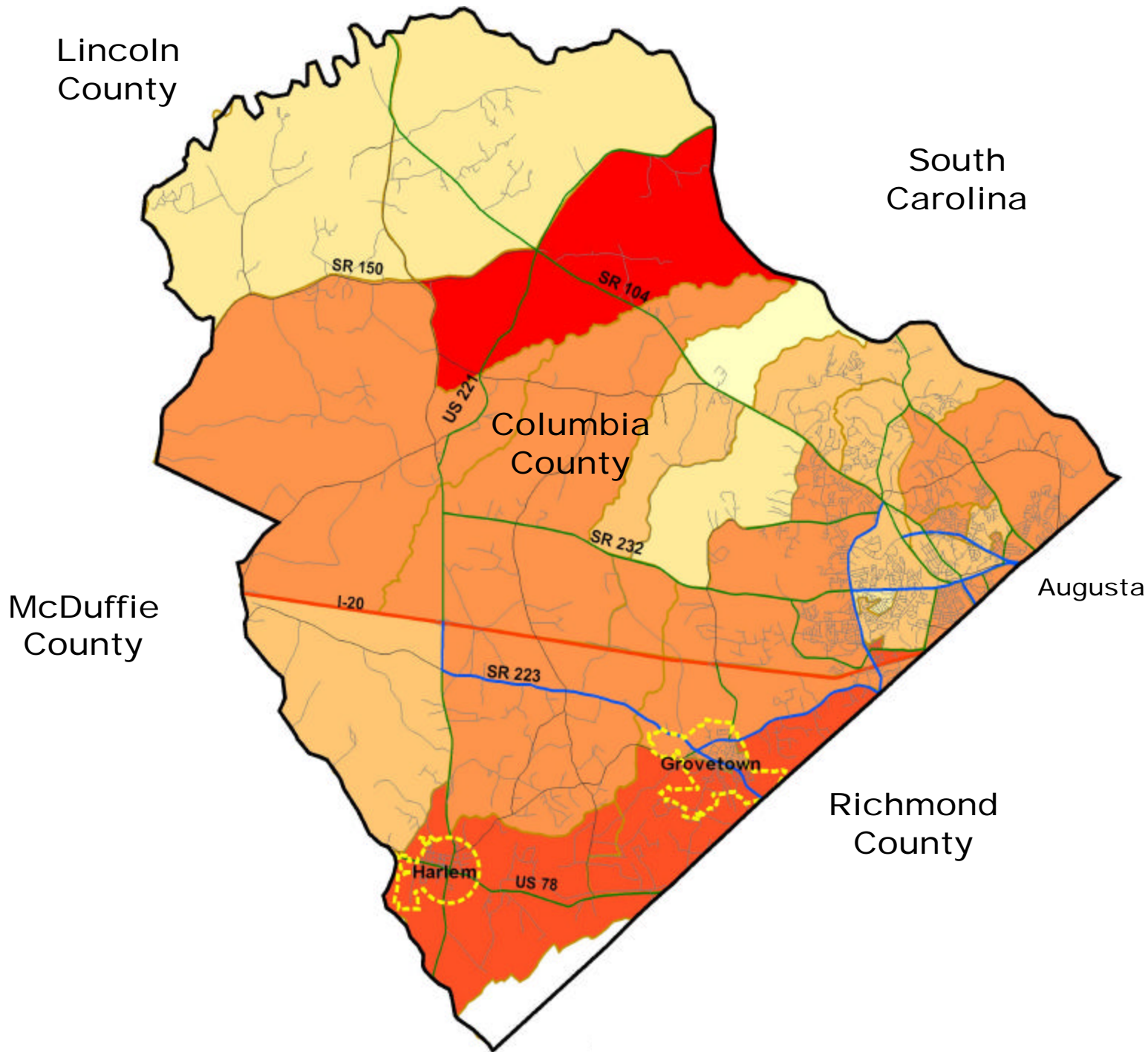
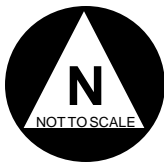
The U.S. DOT Order on Environmental Justice and Executive Order 12898 address persons belonging to any of the following groups:

- Black;
- Hispanic;
- Asian American;
- American Indian or Alaskan Native; and,
- Low-Income – a person whose household income (or in the case of a community or group, whose median household income) is at or below the U.S. Department of Health and Human Services poverty guidelines.

Environmental justice is intended to acknowledge minority and low-income populations and ensure that these groups receive benefits from transportation projects and are not disproportionately impacted as a result of transportation improvement recommendations. Census data was reviewed by census block group to determine potential environmental justice areas, which shows a relatively equal distribution throughout the County.

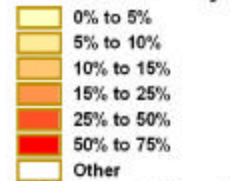
The minority population for Columbia County was analyzed using the 2000 census data. This census data was reviewed by census block group, and shows a relatively equal distribution throughout the County. The minority population ranges from 8.6% to 63.8%. The average minority population figure for Columbia County is 17.3% while the statewide average is 34.9%.

The results are displayed in Figure 4.1.2.



Legend

Percent Minority



Roadway Network

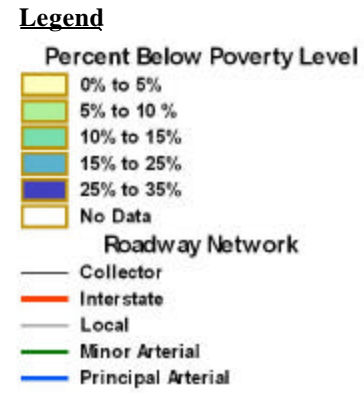
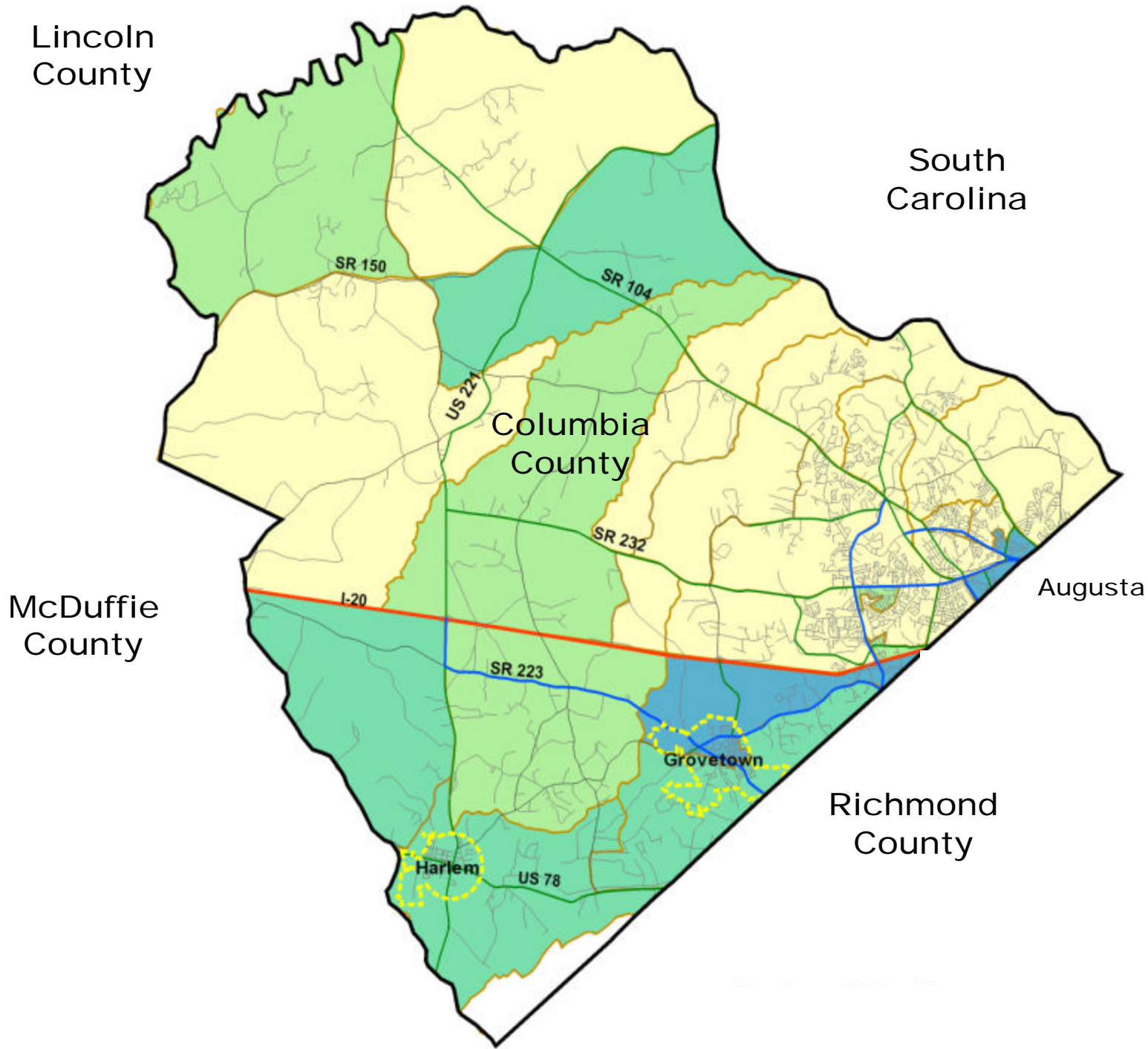
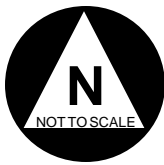


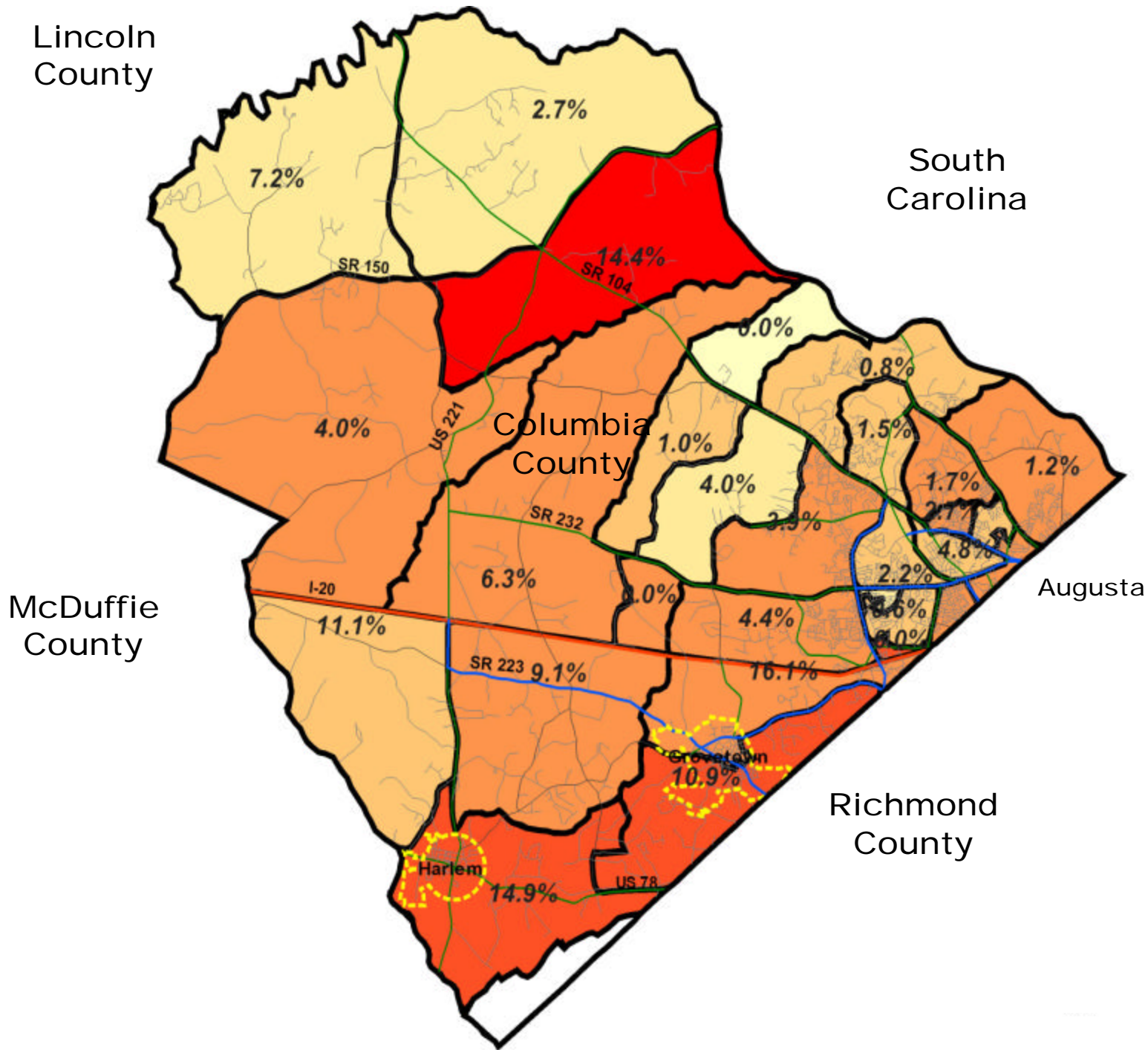
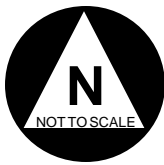
4.1.3 Percentage Low-Income

The second component for environmental justice, poverty level, was also analyzed using the 2000 census data. This census data was reviewed by census block group, and similar to the minority population shows a relatively equal distribution throughout the County. The low-income population ranges from 0% to 16.1% throughout the County census block groups. The countywide average for poverty in Columbia County is 8.1% while the statewide average is 13.0%. The results are displayed in Figure 4.1.3.1.

It is helpful to analyze the low-income areas with the location of minority populations. Interest is drawn to areas with high populations for both of these categories. Figure 4.1.3.2 combines the minority and low-income population data and presents it in a single graphic.

A couple of census block groups were identified as part of this analysis and efforts were made to include these groups in the planning process. These areas were evaluated to ensure that transportation improvements would benefit and do not disproportionately impact these areas in a negative manner.





4.1.4 Future Population

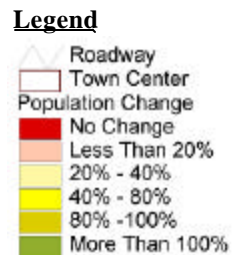
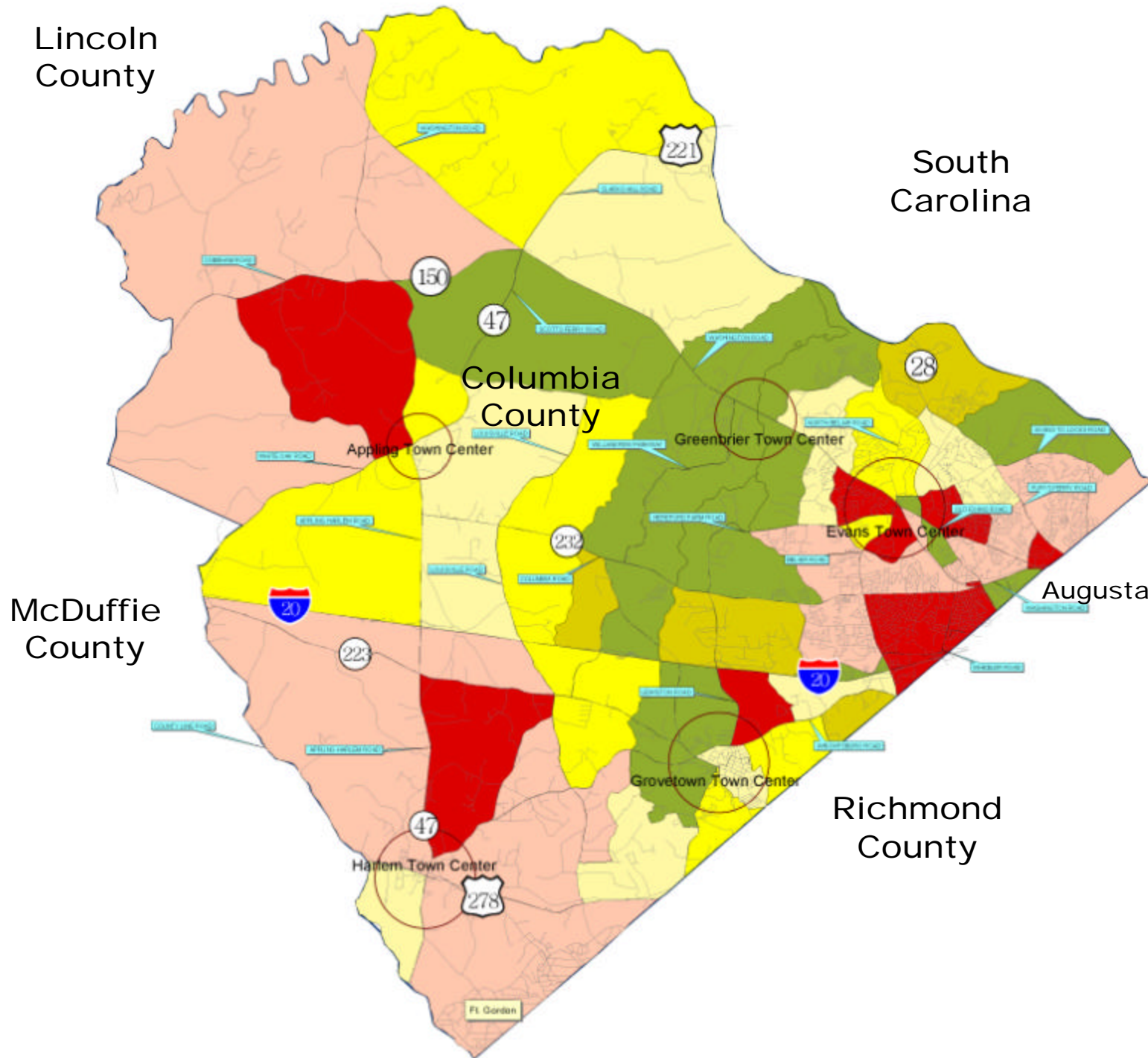
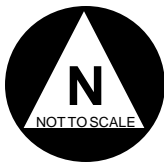
The population for Columbia County can be expected to increase in most areas of the County through the study horizon of 2025. A historical review of population data for Columbia County shows that while the study area's population declined in the 1940s, steady growth has occurred in the County over the past 40 years. Table 4.1.4 illustrates the growth trends for the County from 1900 to 2000.

Table 4.1.4
Historical Population Profile

1900	1920	1940	1960	1980	2000	Percent Change 1980 - 2000
10,653	11,718	9,433	13,423	40,118	89,288	120%

Source: 2000 U.S. Census

The future population growth and the location of this growth within Columbia County was determined by the Columbia County Planning Department and provided for use as part of this study. An accurate assessment of future population was particularly important because it serves as a primary input for calculating future trips through the study area. Similarly, the location of future population growth within the County was critical for accurately assigning trips to the roadway network. Columbia County assigned future population throughout the County based on land use and development patterns documented in the Columbia County 2020 Growth Management Plan. The results are displayed graphically in Figure 4.1.4.



4.2 Employment Change

4.2.1 Existing Employment

Columbia County has a reliance on manufacturing, retail, education, and construction jobs. There is however some diversified employment that includes jobs in transportation, warehousing, utilities; professional, scientific and management, arts, entertainment, recreation and accommodations, and food service. The number, type, and location of jobs have direct implications to the types of transportation facilities needed by business operations and workers in the area as well as the number of trips generated by these facilities. Table 4.2.1.1 shows the major categories of jobs and industries located in Columbia County.

Table 4.2.1.1
Existing Industry Jobs

Industry Type	# of Jobs
Agriculture, Forestry, Fishing, Hunting, and Mining	258
Construction	2,069
Manufacturing	2,796
Wholesale Trade	517
Retail Trade	4,387
Transportation, Warehousing, and Utilities	660
Finance, Insurance, Real Estate and Rental and Leasing	889
Professional, Scientific, Management, Administrative, and Waste Management Services	2,509
Education, Health, and Social Services	3,905
Arts, Entertainment, Recreation, Accommodation and Food Services	284
Other Services	432
Public Administration	788
TOTAL	19,778

Source: 2000 U.S. Census

Transportation mobility for workers in the study area is an important consideration for the LRTP. Not surprisingly, most workers (97%) in the study area rely on highway-based transportation for commute trips, either by driving alone or carpooling. About 1.2% of workers in the study area walked or commuted to work by other means and 2.2% worked at home. Table 4.2.1.2 illustrates the breakdowns in commuting modes for Columbia County.

Table 4.2.1.2
Existing Work Commute Patterns

Commuting Mode	Number	Percent
Total Workers (age 16 and older)	43,507	100
Drove Alone	37,501	86.2
Carpooled	4,470	10.3
Transit/Taxi	59	0.1
Bicycle or Walked	265	0.6
Other means	261	0.6
Worked at home	951	2.2
Mean travel time to work (minutes)	25.3	

Source: 2000 U.S. Census

It is clear that the study area has become increasingly attractive to people and business owners who enjoy a rural lifestyle while having good access to nearby amenities in the Augusta urban area.

4.2.2 Employment Data for Use in Regional Travel Demand Modeling

Employment data is a key factor in travel demand modeling. This data provides trip attractions, while the population data provides trip productions. The employment data is divided into three major categories: commercial; service; and, industrial. Accurate estimates of future employment are critical to successful long range planning because of the high number of trips attracted to employment centers. The Columbia County Planning Department developed all future employment projections and assigned future employment to appropriate census tracts based on information contained in the Columbia County 2020 Growth Management Plan. More detailed information regarding the model and the use of employment data in the model development process is presented in the Travel Demand Model Technical Memorandum.

5.0 Rural Transit

Limited transit services are provided in Columbia County, where there are two available types of transit facilities. The first transit facility available is Columbia County's Rural Public Transit. This transit system consists of vans which operate on an appointment basis for transport to the following destinations within Columbia and Richmond Counties, north of Gordon Highway:

- Fort Gordon;
- Educational Facilities;
- Employment Centers;
- Shopping Facilities;
- Medical Facilities; and,
- Recreational Facilities.

24-hour notice is required for appointments, and operating hours are from 8:00 AM to 5:00 PM, Monday through Friday. Although this system is available to all Columbia County residents, riders who are not physically able to manage themselves, including those in wheelchairs, must have an escort.

Public comment received through the study process indicated that Columbia County's Rural Public Transit Service was approaching or exceeding capacity on a fairly regular basis. While the service could over the course of a day accommodate most requests, sometimes the waiting period for pick-up or drop-off exceeded 3-5 hours making it difficult to rely on this mode for appointments or work related activities.

Another public transit facility available to Columbia County residents is Augusta Public Transit. Route 5 of this fixed bus route system services a limited area of Columbia County. The service area includes Washington Road, Davis Road, and Pleasant Home Road. This facility operates weekdays from 6:30 AM to 7:00 PM and Saturdays from 7:00AM to 7:00 PM, excluding holidays

The Georgia Statewide Transportation Plan and Process (published in November 2000) states that between 1994 and 1998 there was a 21% decrease in annual Urban Revenue Miles for Augusta Public Transit. In addition, between 1994 ad 1998 there was a 15% decrease in Augusta Transit ridership. In 1999, Augusta Public Transit prepared short-range and long-range transit plans. The primary recommendation included in these plans is a vehicle replacement schedule. Additionally, the Augusta-Richmond MPO has no plans for expansion of fixed route transit services in Columbia County.

6.0 Freight & Rail

Several companies utilize freight operations in Columbia County. A majority of these freight operation involve trucks, however some of the businesses are located along the railroads and utilize trains for the movement of their freight. These companies are listed in Table 6.0. All of these companies were contacted as part of this study to identify existing and future deficiencies and needs. Comments from these groups were generally supportive of the transportation network with critical comments relating to minor operational problems at selected locations.

Table 6.0
Freight Companies

Company	City	Location
Club Car	Evans	Commerce Ct
Quebecor	Evans	Evans to Lock Rd
John Deere	Grovetown	Horizon South
Serta	Grovetown	Horizon South
Martin Marietta	Grovetown	Columbia Rd
Rinker Materials	Grovetown	Columbia Rd
Georgia Iron Works	Grovetown	Wrightsboro Rd

The major commodities moved by the railroads that originate or terminate within the study area are Rock products and Clay/Concrete/Glass/Stone products. Overall, the State Freight Plan predicts a 1.3% annual growth rate for Concrete/Glass products and an annual growth rate of –1.6% for Pulp and Paper products. These products are handled by local trains. However, most traffic on the county's rail lines, six of the daily trains on the Harlem route and two of the daily trains on the Greenwood route, is through traffic comprised on intermodal shipments to the ports of Charleston and Savannah, mixed freight trains, and merchandise trains.

There are currently two active rail lines within the study area, The Atlanta-Augusta Line and the Augusta-Greenwood Line. Columbia County is well served by these lines in the north-south direction and east-west direction. The two lines through the area are part of the CSX national system and carry mainly through traffic to and from the ports of Charleston and Savannah. Consequently, the overall direct impact of the rail lines on the study area is minimal. Traffic on these lines is likely to grow concurrent with any growth in the ports. There is limited local traffic on the lines in the county with natural resources playing an important part along the east-west line through Harlem with the north-south line serving the manufactures in eastern Columbia County. There are no currently active rail yards in the study area, though some sidings are provided to allow businesses to

access the rail lines. CSX Transportation operates the two rail lines in the study area. The information presented below comes from either the GDOT Office of Intermodal Programs, particularly the 1998 (the most recent) Rail Freight Plan, and the Georgia Geographic Information System (GIS) Clearinghouse.

Atlanta-Augusta Line

The CSX mainline between Atlanta and Augusta runs through the southern part of Columbia County. The line parallels US 78 and runs through the town of Harlem just north of Fort Gordon. This line bisects downtown Harlem and there are a number of at-grade crossings from Harlem east to the McDuffie County line. According to the Georgia Freight Rail Plan this line carries 14 MGT/M annually. At least eight trains use this line Monday through Friday according to the latest available CSX schedule. Six trains use this line on the weekends and one additional rock train runs as needed.

Augusta - Greenwood, SC

This CSX also operates another major line between August and Greenwood, SC that passes through Columbia County. This line enters the County parallel to SR 104 on the border with Richmond County and runs approximately due north before crossing the Savannah River into South Carolina. There are few at-grade crossings along this line, though the northern portion of this line runs adjacent to several residential subdivisions, a school, and the public boat ramp and park. The rest of the line passes through the center of an industrial park and then parallels the commercial strip along SR 104 into Augusta. According to the Georgia Freight Rail Plan this line carries 17 MGT/M annually. Three trains use this line daily according to the latest available CSX schedule. One additional train runs Sundays, Tuesdays, and Thursdays.

The east-west line passes through the historic areas of Columbia County, particularly through downtown Harlem. Care should be taken to make sure that any increases in traffic along this line do not negatively impact Harlem. The north-south line between Greenwood, SC and Augusta is located in a more recently developed area that does not focus on the rail line, except for the industrial businesses and the commercial strip along SR 104. As the northern area of this line in Columbia County is developed, care should be taken to ensure that the development surrounding the rail line is compatible with rail activity.

Rail traffic is an important element in the industrial base of the study area. Care should be taken to make sure that any increases in rail traffic do not adversely impact historic areas and residents and that increases in freight traffic are managed well so that the rail lines continue to be a valuable transportation asset for the study area. Special attention should also be paid to managing the impacts of freight traffic on the other travel modes in the study area so that the rail lines continue to be a valuable transportation asset for the study area. Between January 2000 and September 2003, there were no incidents reported to the Federal Railroad Administration (FRA) on any of the lines operated in Columbia County.

7.0 Airports

Columbia County does not currently have a major airport, the closest one being the Augusta Airport located in Richmond County. The Augusta Airport is a Level I (Daniel Field) and Level III (Augusta Regional at Busch Field) facility. The service area for these facilities includes Columbia County.

Review of the Georgia Aviation Systems Plan shows that there are currently no plans for an airport in Columbia County.

8.0 Bicycle and Pedestrian

Columbia County currently has two multi-use trails for bicyclists and pedestrians recognized in the Georgia Department of Transportation Statewide Bicycle and Pedestrian Plan. The longer of these two facilities is the Augusta Link Corridor. It travels east-west across Columbia County in seven segments from McDuffie County to Richmond County covering approximately 19.6 miles. Three segments of this trail, totaling 4.7 miles, are part of the Georgia State System. The second multi-use trail in Columbia County is Phase I of the Evans-to-Locks Road facility. This first phase of the trail extends from Savannah Rapids Pavilion to Fury's Ferry Road.

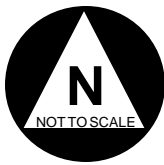
Columbia County is currently developing priorities for enhancing their bicycle and pedestrian facilities. The County's goal is to provide a bicycle and pedestrian network to serve the local and regional needs of the communities. It is also the intent of the County to promote these facilities as a safe and healthy transportation option throughout the region for potential users.

Criteria were developed to identify and prioritize potential bicycle and pedestrian enhancements beyond those established as part of the ARTS Bicycle and Pedestrian Plan. Key bicycle and pedestrian evaluation criteria include:

- Proximity to Schools and other Public Facilities;
- Infill – Connecting existing pieces of the sidewalk network;
- Connectivity – Access between major bicycle and pedestrian origins and destinations;
- Roadway Expansion – Where roads are reconstructed or constructed along new alignments, provide sidewalks as appropriate;
- As new development occurs, encourage development to provide adequate right of way for bicycle and pedestrian facilities; and,
- Consistency with the GDOT Statewide and ARTS Bicycle and Pedestrian Plan.

Figure 8.0 shows the priority areas for bicycle and pedestrian enhancements.

Lincoln
County



South
Carolina

Columbia
County

McDuffie
County

Augusta

Georgia Bicycle and Pedestrian
Statewide Route Network
Augusta Link Corridor

Harlem

Grovetown

Richmond
County

Legend

- Existing
- Ped Only Planned
- Planned
- Schools
- Libraries
- Parks
- Major Roads
- Other Roads
- Study Area
- City Boundary
- Lakes
- Institutional Land
- Urbanized Area Boundary
- County Boundary

9.0 Bridges

One of the critical concerns for the County was the condition of the numerous bridges through the study area. Columbia County bridges were evaluated to determine the need for potential improvement. Deficient bridges pose a major obstacle to a fully functional road network due to load limits or other deficiencies. The study area was reviewed to identify all bridges and assess the need for potential improvements.

To facilitate the completion of this effort GDOT provided bridge condition reports for each bridge within the study area. A general measure of the condition of each bridge is the sufficiency rating. All bridges with a sufficiency rating of fifty (50) or lower were identified as deficient and a more detailed assessment of bridge inventory elements was performed to facilitate the ranking of bridges for potential improvement.

The sufficiency rating is used to determine the need for maintenance, rehabilitation or reconstruction of a bridge structure. With adequate maintenance any structure with a sufficiency rating of above 75 should maintain an acceptable rating for at least 20 years. Structures with a rating between 65 and 75 are less satisfactory and structure with a sufficiency rating of 65 or lower have a useful life of less than twenty years and will require major rehabilitation or reconstruction work during the study horizon.

Fifty-seven (57) bridges currently exist within the County. Table 9.0 displays the collected information for all of the bridges in Columbia County.

Table 9.0
Bridge Inventory

Road	Feature	Location	Sufficiency Rating
SR 232*	Crawford Creek	4.4 mi NE of Grovetown	36.54
SR 223	Kiokee Creek	5.8 mi NW of Harlem	51.53
SR 47*	Keg Creek	6.9 mi N of Appling	54.17
CR 576/Louisville Rd	I-20	5.2 mi NW of Grovetown	54.65
SR 232	Walton Branch	4 mi NE of Grovetown	56.34
CR 253/Baker Place Rd	I-20	3.7 mi NW of Grovetown	59.03
SR 223*	Uchee Creek	2.2 mi NW of Grovetown	61.44
CR 238/Chamblin Rd	I-20	2.4 mi NW of Grovetown	62.09
SR 104	Kiokee Creek	6.2 mi NE of Appling	66.63
CR 27/Dozier Rd	Greenbriar Creek	2.0 mi NW of Appling	67.61
SR 47	Greenbriar Creek	2.5 mi NE of Appling	73.90
CR 580/North Belair Rd	CSX Railroad	9.1 mi NE of Grovetown	75.39
CR 227/Sir Galahad Dr	Betty's Branch	0.8 mi W of Evans	77.73
SR 388/Lewiston Rd	I-20	2.1 mi N of Grovetown	78.00
SR 47	I-20	5.7 mi N of Harlem	79.00
SR 104	Betty's Branch	4.7 mi NW of Martinez	79.47
CR 578/Tubman Rd	Kiokee Creek	3.0 mi NE of Appling	79.79

Road	Feature	Location	Sufficiency Rating
US 221	Clark Hill Dam	10.6 mi NE of Appling	80.18
SR 104	Little Kiokee Creek	6.6 mi NE of Appling	81.57
CR 562/Covered Bridge Rd	Betty's Branch	2.0 mi NW of Evans	84.64
CR 986/Ray Owens Rd	Greenbriar Creek	2.0 mi N of Appling	86.14
SR 402/I-20 EBL	Uchee Creek	2.7 mi NW of Grovetown	86.42
SR 402/I-20 WBL	Uchee Creek	2.7 mi NW of Grovetown	86.42
SR 104	Long Branch	7.8 mi E of Appling	86.72
SR 402/I-20 EBL	Kiokee Creek	6.1 mi NW of Harlem	86.73
SR 402/I-20 WBL	Kiokee Creek	6.1 mi NW of Harlem	86.73
SR 232	Uchee Creek	4.2 mi NW of Grovetown	86.85
SR 383/Belair Rd	I-20	4.5 mi NE of Grovetown	87.00
SR 232	Benton Branch	1.1 mi SE of Appling	87.56
CR 1/ County Line Rd	Mollie Creek	4.8 mi NW of Harlem	89.23
CR 1/County Line Rd	Kiokee Creek	5.0 mi NW of Harlem	89.23
CR 647/Watervale R	Reed Creek	1.3 mi NE of Martinez	89.26
SR 104	Uchee Creek	5.2 mi NW of Martinez	89.61
SR 28	Jones Creek	3.6 mi NW of Martinez	90.45
SR 47	Kiokee Creek	0.2 mi S of Appling	90.61
SR 223	Little Kiokee Creek	4.6 mi NE of Harlem	91.05
CR 570/White Oak Rd	Satterwhite Creek	2.6 mi W of Appling	91.20
US 221	Boggy Gut Creek	2.4 mi S of Harlem	91.59
CR 575/Harlem-Grovetown Rd	Uchee Creek	1.7 mi NE of Harlem	91.87
CR 176/Old Evans Rd	Reed Creek	1.0 mi SE of Evans	91.90
CR576/Louisville Rd	Little Kiokee Creek	4.8 min NW of Grovetown	92.01
CR 102/Hereford Farm Rd	Tudor Branch	3.5 mi W of Evans	92.01
US 221	Greenbriar Creek	3.6 mi NE of Appling	92.10
CR 627/Blue Ridge Dr	Reed Creek	1.3 mi E of Evans	92.20
CR818/Stevens Way	Reed Creek	1.7 mi NE of Martinez	92.26
CR 27/Dozier Rd	Buggs Creek	3.5 mi NW of Appling	92.32
CR 852/The Pass	Reed Creek	1.4 mi NW of Martinez	92.35
SR 232	Reeds Creek	6.4 mi NE of Grovetown	93.82
SR 232	Little Kiokee Creek	5.9 mi NW of Grovetown	95.50
SR 104	Reeds Creek	2.6 mi NW of Martinez	95.89
CR 92/Hardy McManus Rd	Betty's Branch	5.5 mi NW of Martinez	96.17
SR 28	Reeds Creek	1.6 mi N of Martinez	96.83
CR 575/Harlem-Grovetown Rd	Uchee Creek	2.0 mi W of Grovetown	98.65
CR 986/Ray Owens Rd	Harris Branch	2.2 mi N of Appling	99.25
US 221	Kiokee Creek	4.8 mi NW of Appling	99.64
CR 320/Old Washington Rd	Little Kiokee Creek	5.7 mi NE of Appling	99.88
CR 238/Chamblin Rd	Uchee Creek	3.0 mi NW of Grovetown	99.89

* These bridges are currently part of the 2004 – 2006 STIP

Based on the sufficiency rating, a majority of the bridges are in good condition and not in need of any major maintenance or upgrade activities. The bridge located on SR 232 at Crawford Creek has a sufficiency rating below 50. This bridge is currently programmed for improvement in the 2003-2006 STIP. Additionally, there are ten (10) bridges that have a sufficiency rating below 75 and should be considered candidates for maintenance and rehabilitation. The following bridges have a sufficiency rating below 75:

- SR 232 at Crawford Creek
- SR 223 at Kiokee Creek
- SR 47 at Keg Creek
- CR 576/Louisville Road at I-20
- SR 232 at Walton Branch
- CR 253/Baker Place Road at I-20
- SR 223 at Uchee Creek
- CR 238/Chamblin Road at I-20
- SR 104 at Kiokee Creek
- CR 27/Dozier Road at Greenbriar Creek
- SR 47 at Greenbriar Creek

10.0 Safety

The latest three years of available crash data from the Georgia Department of Transportation (1997, 1998 and 2001) was collected for state roads and analyzed for the entire study area. Additionally, available crash data along the county roads was collected for 1999-2001. The crash data was used to determine locations with potential safety deficiencies through the study area.

The safety analysis revealed thirty-three (33) intersections with at least thirty (30) crashes within the 3-year analysis period. It is likely that many of these locations experience a high number of crashes due to volume and not due to geometric or safety deficiencies. These intersections are documented in Table 10.0.

Table 10.0
High Crash Intersections

Road Name	Crossing Street	Crashes
Bobby Jones Expy/Old Evans Rd	Washington Rd	128
Columbia Rd/Ruth St	Washington Rd	103
Washington Rd	Bobby Jones Expressway	102
Washington Rd	Columbia Rd	93
Industrial Park Dr/N Belair Rd	Washington Rd	91
Davis Rd	Washington Rd	88
Baston Rd	Washington Rd	80
Columbia Rd	N Belair Rd/S Belair Rd	79
I-20 WB Ramps	Jimmie Dyess Pkwy/S Belair Rd	79
S Belair Rd	S Old Belair Rd/Wheeler Rd	76
Belair Frontage Rd/Park West Dr	Jimmie Dyess Pkwy	72
I-20 EB Ramps	Jimmie Dyess Pkwy/S. Belair Rd	69
Washington Rd	Davis Rd	65
Old Evans Rd (West end in Evans)	Washington Rd	61
Baston Rd	Martinez Blvd (right in/right out only -late 2002)	60
Bobby Jones Expy	Rose Ln/Settlement Rd	58
Columbia Rd	Belair Rd	57
Washington Rd	Belair Rd	56
Washington Rd	Baston Rd	54
Baston Rd	Old Petersburg Rd	54
Evans to Locks Rd	Fury's Ferry Rd	52
Cox Rd/Owens Rd	N Belair Rd	51
Oak St N	Washington Rd	48
Columbia Rd	Flowing Wells Rd	43
Evans to Locks Rd	Washington Rd	43
Towne Center Dr	Washington Rd	40

Road Name	Crossing Street	Crashes
Washington Rd	Evans to Locks Rd	37
Fury's Ferry Rd	Evans To Locks Rd	36
Flowing Wells Rd	Washington Rd	35
Country Place Ln/Fieldstone Way	Washington Rd	34
Baston Rd/Vaughn Rd	Fury's Ferry Rd	31
Evans to Locks Rd	Stevens Creek Rd	30
Hereford Farm Rd/Towne Center Dr	N Belair Rd	30

**State Roads = 1997, 1998 & 2001*

County Roads = 1999 - 2001

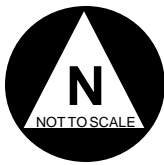
Figure 10.0 shows the high crash locations in Columbia County.

These intersections were considered candidates for roadway improvements as part of the strategy screening process. Potential improvements could either address safety issues, as determined by crash history or capacity deficiencies as determined in the previous section.

Exploring the need for intersection improvements, turn lanes, signalization and raised medians to better 'channelize' traffic and lower conflict points at these locations should be considered. According to GDOT, raised medians increase the capacity of the roadway, reduce accidents, lower congestion, provide pedestrian refuge and often save lives. They may also be landscaped to beautify corridors and may become focal points for community landscaping efforts.

Lincoln
County

South
Carolina

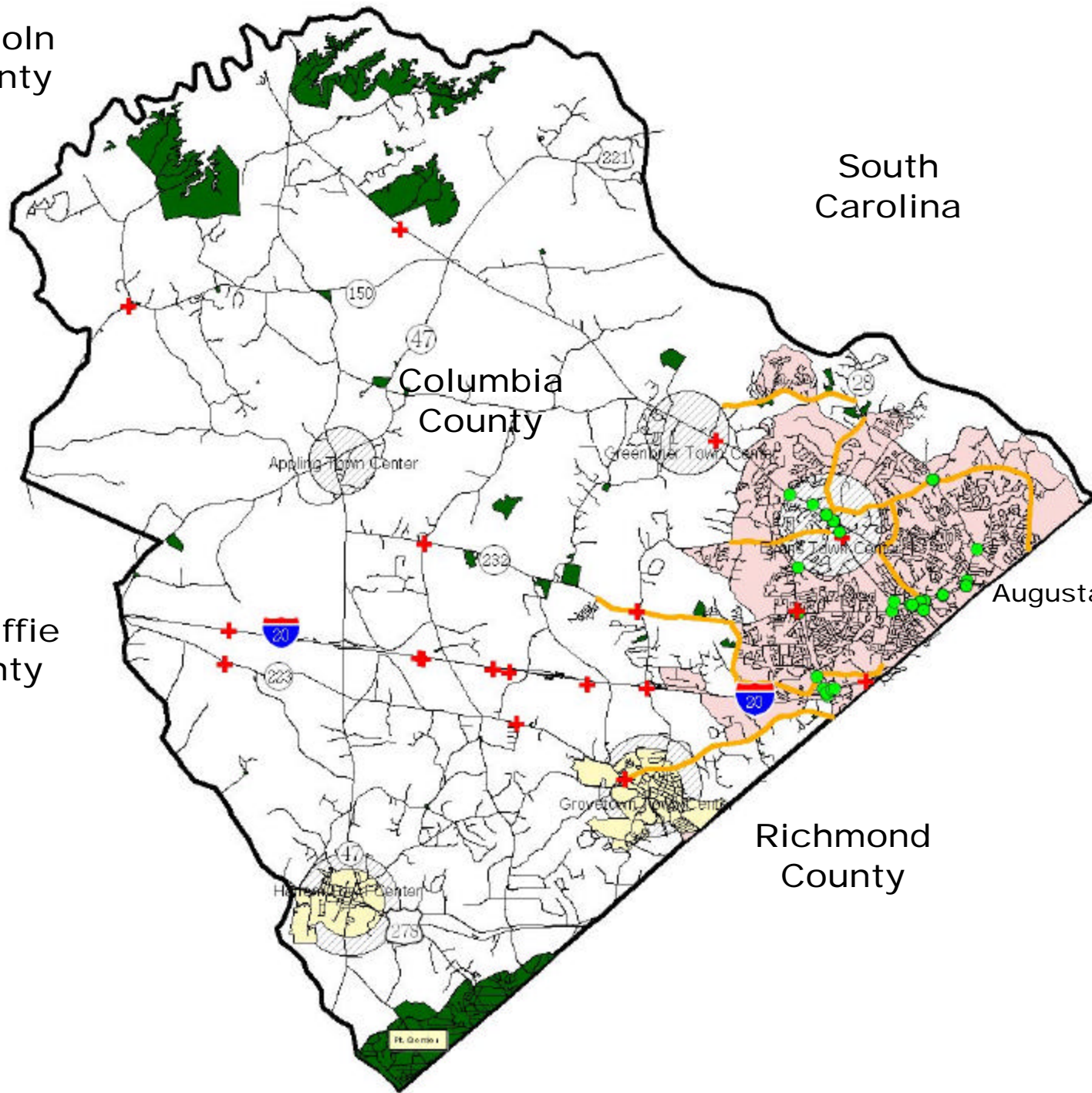


McDuffie
County

Columbia
County

Augusta

Richmond
County



Legend

- Crash Location
 - + At Least 1 Fatal Accident
 - ≥ 10 Injury Per Year
- Corridor Action Plan
 - Safety Analysis Corridor
- Local Roads
 -
- City Boundary
 -
- Town Center
 -
- Urbanized Area
 -
- County Boundary
 -

11.0 Deficient Segments

The travel demand model was developed to assist in the evaluation of the existing and future travel conditions through the study area. More detailed information regarding the model and model development process is presented in the Travel Demand Model Technical Memorandum (dated March, 2004). The key output from the travel demand model is volume to capacity ratio for each roadway segment. The volume to capacity ratios correspond to a level or service based on accepted methodologies from the 2000 Highway Capacity Manual and provided by GDOT. Existing (2000) and future (2025) operating conditions for the study are summarized in the following sections.

Prior to documenting operating conditions it is useful to summarize level of service. Level of service (LOS) is a qualitative measure of traffic flow describing operating conditions. Six levels of service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and F the worst. A facility may operate at a range of levels of service depending upon time of day, day of week or period of the year. A qualitative description of the different levels of service is provided below.

- **LOS A** – Drivers perceive little or no delay and easily progress along a corridor.
- **LOS B** – Drivers experience some delay but generally driving conditions are favorable.
- **LOS C** – Travel speeds are slightly lower than the posted speed with noticeable delay in intersection areas.
- **LOS D** – Travel speeds are well below the posted speed with few opportunities to pass and considerable intersection delay.
- **LOS E** – The facility is operating at capacity and there are virtually no useable gaps in the traffic.
- **LOS F** – More traffic desires to use a particular facility than it is designed to handle resulting in extreme delays.

11.1 Existing Operating Conditions

The existing conditions scenario for the Columbia Model was used to determine deficient roadway segments. The best approach to determine deficient segments in Columbia County is to analyze the volume of traffic on the roadway segments compared to the actual capacity of those segments. GDOT has identified the following minimum acceptable level of service (LOS) thresholds for roadway operating conditions. For daily operating conditions any segment with a LOS D or worse is identified as deficient. For peak hour operating conditions any segment identified as LOS E or worse is considered deficient.

The existing analysis shows that fourteen (14) roadway segments can be expected to operate below LOS E during the AM peak period. Of these fourteen (14) segments,

eleven (11) can be expected to also operate below LOS E during the PM peak period. Three (3) minor segments can be expected to operate below LOS D under daily conditions.

Table 11.1 displays the deficient roadway segments with their LOS for AM peak, PM peak and daily operating conditions.

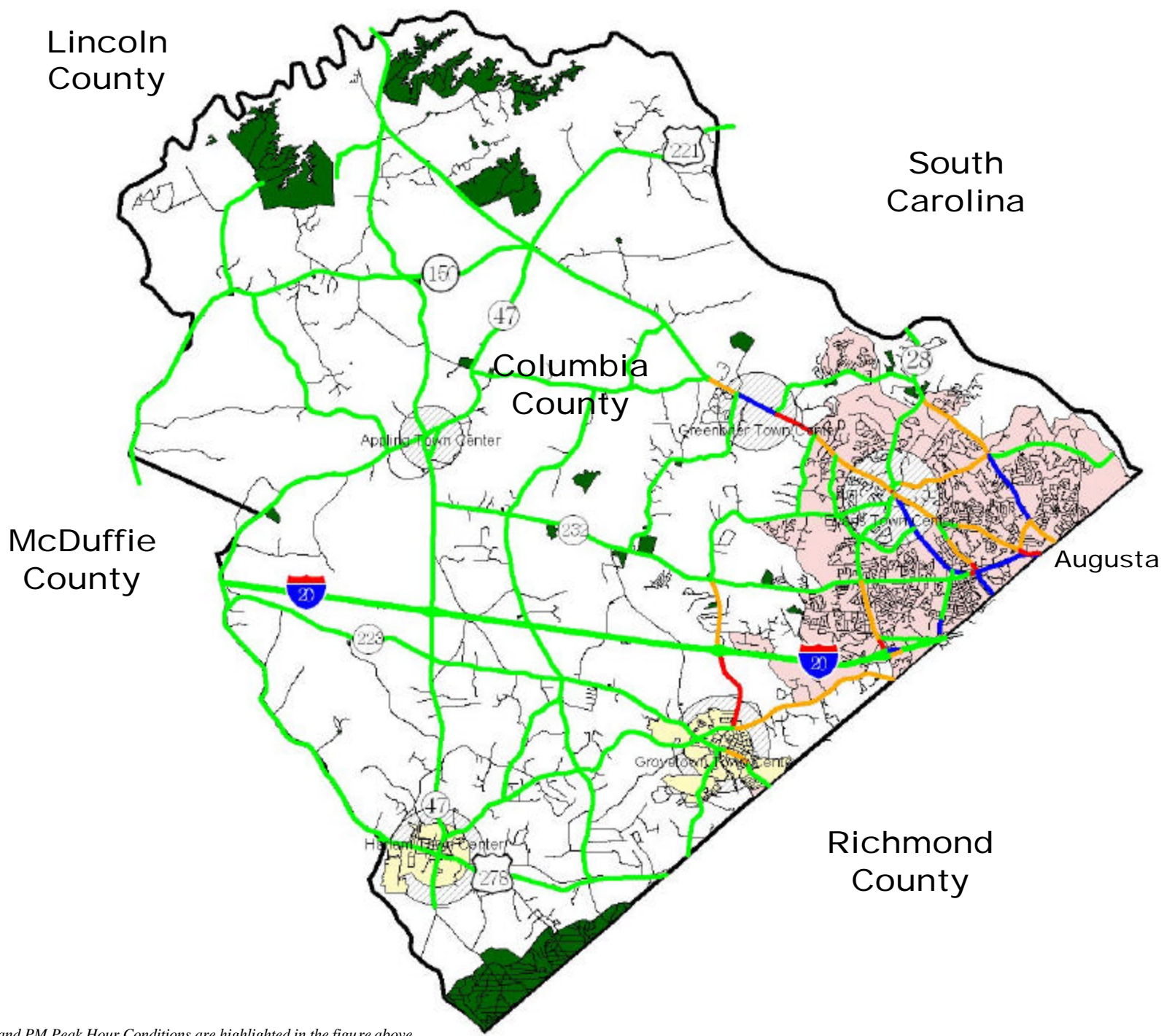
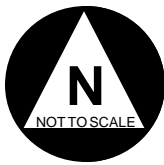
Table 11.1
Existing Deficient Segments

Roadway	From	To	AM		PM		Daily	
			Volume ⁽¹⁾	LOS	Volume ⁽¹⁾	LOS	Volume ⁽²⁾	LOS
Belair Rd	Between I-20 Ramps		2,167	F	1,642	D	25,008	C
Belair Rd	I-20 WB Ramp	Wheeler Rd	2,000	F	1,759	E	24,797	C
Bobby Jones Expy	Washington Rd	Richmond County	1,894	E	1,981	E	29,170	C
I-20 WB off-ramp	Belair Rd		479	C	810	E	5,590	
Lewiston Rd	Between I-20 Ramps		757	E	893	F	11,207	C
Horizon South Pkwy	I-20 Ramp	Wrightsboro Rd	899	F	724	D	10,829	C
Horizon South Pkwy	Wrightsboro Rd	Robinson Ave	848	E	712	D	9,786	C
Old Evans Rd	Martinez Blvd	Washington Rd	833	F	817	F	13,058	D
Washington Rd	William Few Pkwy	Hardy McManus Rd	1,000	E	1,008	E	15,420	C
Washington Rd	Hardy McManus Rd	Blanchard Rd	1,279	F	1,225	E	17,513	C
Washington Rd	N Belair Rd	Belair Rd	2,257	F	2,157	F	32,514	D
Washington Rd	Town Center Dr	Owens Rd	1,956	E	1,900	E	27,085	C
Washington Rd	Owens Rd	Flowing Wells Rd	1,968	E	1,885	E	27,038	C
Washington Rd	Columbia Rd	Bobby Jones Expy	3,074	F	2,953	F	40,800	E
Washington Rd	Davis Rd	Baston Rd	1,932	E	1,819	E	27,960	C

(1) - Segment volume is the weighted average of link volume by distance; peak direction volume

(2) - Two-way volumes

Figure 11.1.1 and Figure 11.1.2 present the peak hour and daily deficient segments.

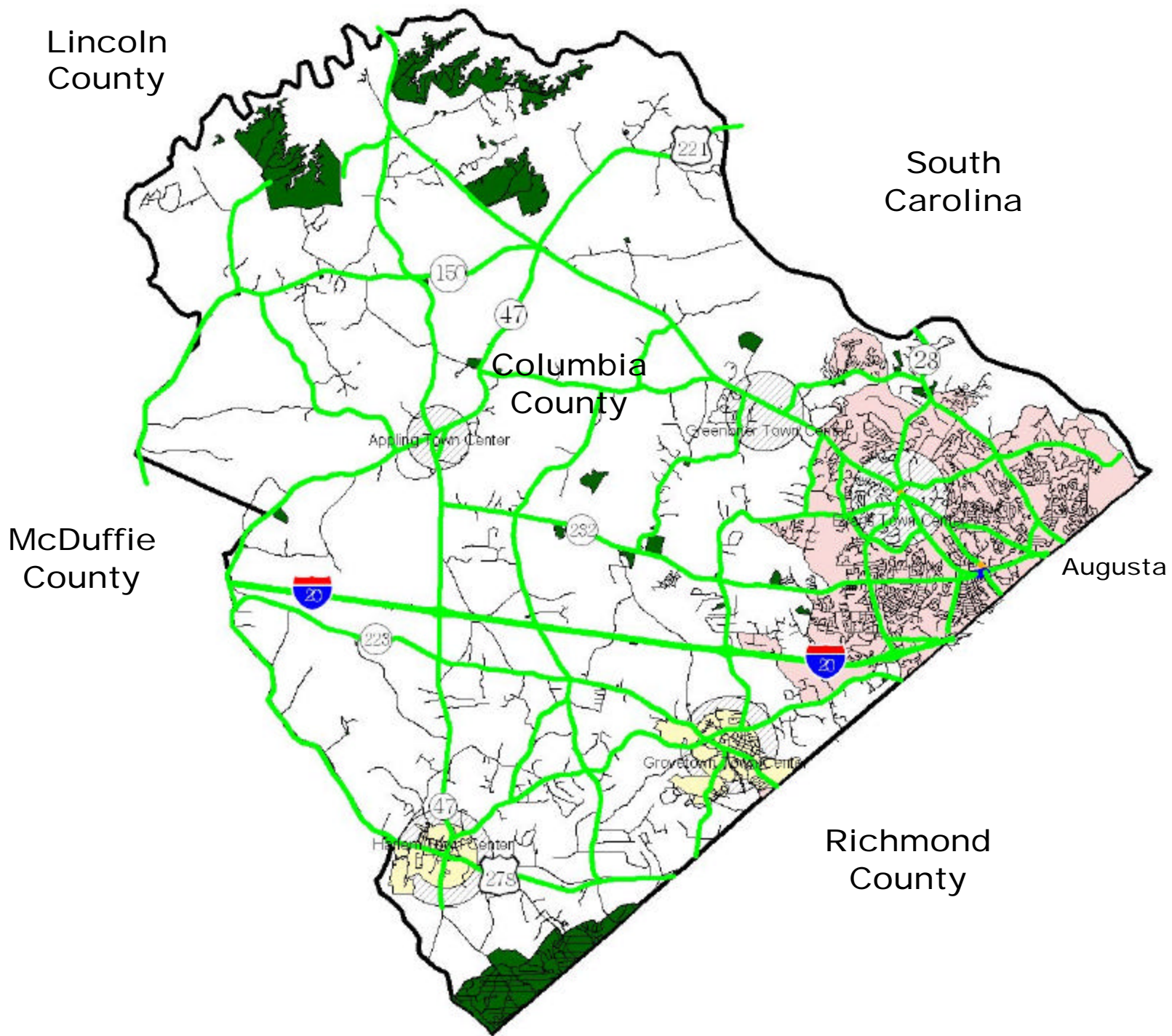
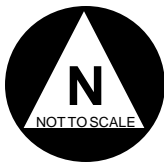


- Legend**
- Level of Service
 - LOS C and Better
 - LOS D
 - LOS E
 - LOS F
 - Local Roads
 - City Boundary
 - Town Center
 - Urbanized Area

Note: AM and PM Peak Hour Conditions are highlighted in the figure above.



Figure No:	Page No:
11.1.1	47



Legend

- Level of Service
- LOS C and Better
- LOS D
- LOS E
- LOS F
- Local Roads
- City Boundary
- Town Center
- Urbanized Area

11.2 Future Operating Conditions

The Long Term scenario was evaluated for the year 2025, the study horizon year. This extended horizon provides an opportunity to determine how well the existing plus committed projects will serve 2025 population and employment in Columbia County. It is useful to point out that the long term projects for population and employment are the least reliable. Not due to any inaccuracies with projection techniques but simply because it requires the judgment of stakeholders to assign population and employment for the study area. This in turn impacts estimates of traffic demand. These results should be considered preliminary and when the transportation plan is updated every 3 to 5 years the projects should be amended as necessary.

The Long Term analysis shows that twenty-eight (28) roadway segments can be expected to operate below LOS E during the AM peak period. Additionally, thirty-three (33) can be expected to operate below LOS E during the PM peak period. Of these roadway segments, twenty-two (22) segments operate below LOS E for both the AM and PM peak periods. Under daily conditions, ten (10) roadway segments are expected to operate below LOS D.

Table 11.2 displays the 2025 Long Term roadway segments operating at an unacceptable LOS.

Table 11.2
Long Term Deficient Segments

Roadway	From	To	AM		PM		Daily	
			Volume ⁽¹⁾	LOS	Volume ⁽¹⁾	LOS	Volume ⁽²⁾	LOS
Appling Harlem Rd	Columbia Rd	I-20	1,095	F	1,105	F	18,959	E
Appling Harlem Rd	I-20	Wrightsboro Rd	842	D	891	E	16,515	D
Baston Rd	Fury's Ferry Rd	Old Petersburg Rd	1,425	E	1,326	E	18,270	C
Belair Rd	Columbia Rd	Wheeler Rd	1,704	E	1,852	E	27,181	C
Belair Rd	Wheeler Rd	I-20	1,982	F	2,173	F	31,019	D
Blanchard Rd	Washington Rd	Hereford Farm Rd	627	E	579	D	8,068	C
Bobby Jones Expy	Washington Rd	County Boundary	1,786	E	2,064	F	32,912	D
Columbia Rd	William Few Pkwy	Hereford Farm Rd	1,282	F	1,190	F	15,603	D
Columbia Rd	Hereford Farm Rd	Old Belair Rd	1,052	F	968	E	12,994	C
Columbia Rd	Old Belair Rd	Belair Rd	1,043	F	1,032	F	12,631	C
Columbia Rd	Belair Rd	Flowing Wells Rd	1,630	E	1,488	D	19,992	C
Cox Rd	Hereford Farm Rd	Belair Rd	741	F	681	E	9,228	C
Evans to Locks Rd	Fury's Ferry Rd	Industrial Park Dr	758	E	750	E	10,530	C
Flowing Wells Rd	I-20	Wind Ridge Dr	814	E	801	E	12,407	C
Fury's Ferry Rd	South Carolina	Hardy McManus Rd	720	D	929	E	20,520	F
Fury's Ferry Rd	Hardy McManus Rd	N Belair Rd	1,383	F	1,492	F	27,448	F
Fury's Ferry Rd	N Belair Rd	Evans To Locks Rd	1,174	F	1,250	F	21,334	F

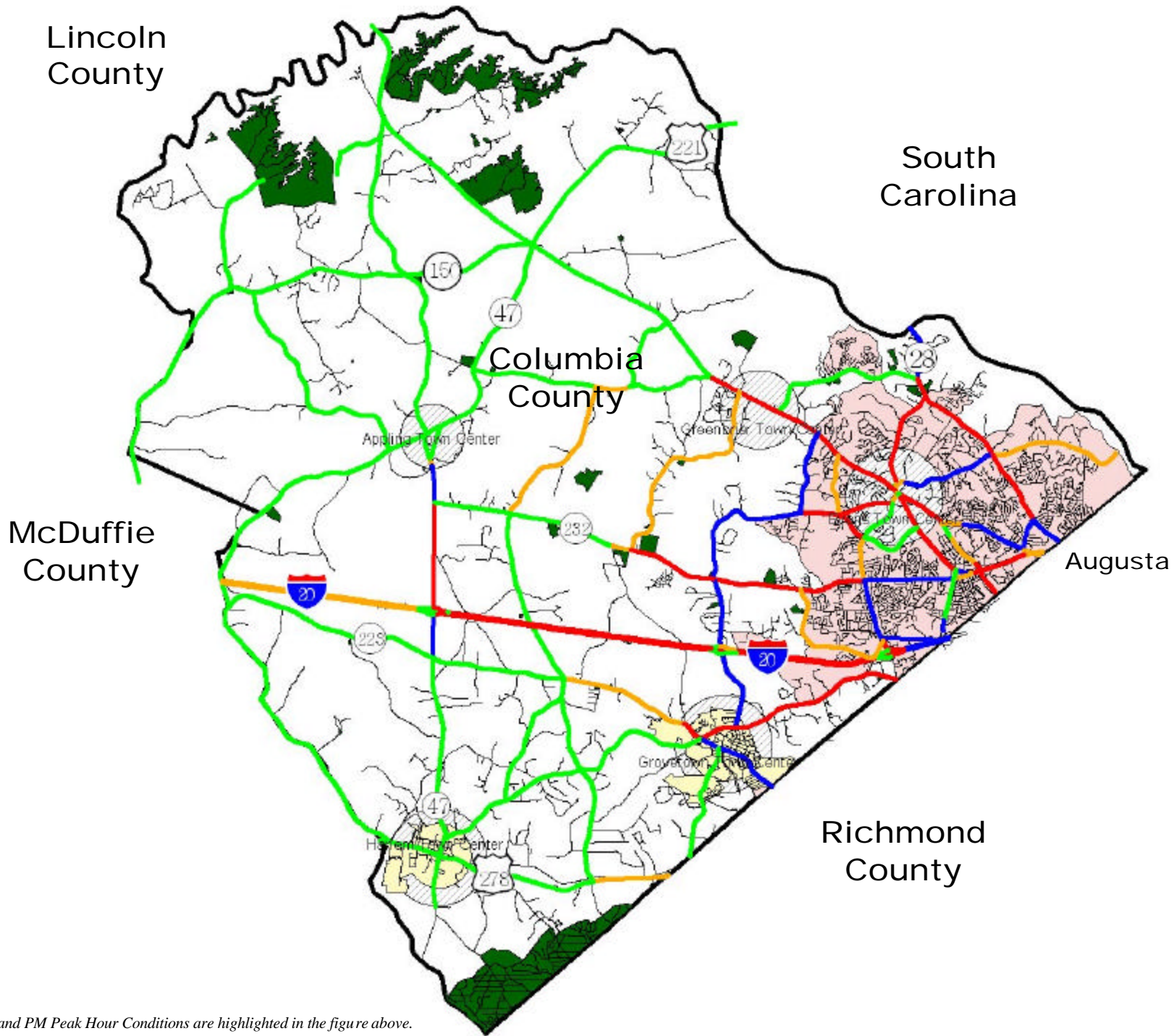
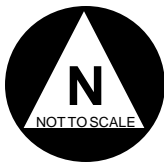
Roadway	From	To	AM		PM		Daily	
			Volume ⁽¹⁾	LOS	Volume ⁽¹⁾	LOS	Volume ⁽²⁾	LOS
Fury's Ferry Rd	Evans To Locks Rd	Baston Rd	1,936	F	1,886	F	26,776	C
Fury's Ferry Rd	Baston Rd	Richmond County	1,840	E	1,710	E	24,429	C
Hereford Farm Rd	Belair Rd	Gibbs Rd	1,268	F	1,129	F	15,224	D
Hereford Farm Rd	Gibbs Rd	Blanchard Rd	1,297	F	1,175	F	16,193	D
Hereford Farm Rd	Blanchard Rd	Columbia Rd	918	E	846	D	12,874	C
Horizon South Pkwy	I-20	Wrightsboro Rd	779	E	575	C	9,293	C
I-20 EB	McDuffie County	Appling Harlem Rd	2,420	C	3,020	D	35,190	E
I-20 EB	I-20 EB at Appling Harlem Rd Between Ramp		2,151	C	2,690	C	31,300	D
I-20 EB	Appling Harlem Rd	Lewiston Rd	3,790	E	4,120	F	45,400	F
I-20 EB	I-20 EB at Lewiston Rd Between Ramp		3,480	E	3,821	E	42,140	F
I-20 EB	Lewiston Rd	Belair Rd	4,390	F	4,440	F	48,230	F
I-20 EB	I-20 EB at Belair Rd Between Ramp		3,811	F	3,880	F	42,161	F
I-20 EB	Belair Rd	Flowing Wells Rd	5,340	E	5,060	E	53,470	E
I-20 WB	Flowing Wells Rd	Belair Rd	3,631	C	5,451	E	50,861	E
I-20 WB	I-20 WB at Belair Rd Between Ramp		2,989	D	4,310	F	42,900	F
I-20 WB	Belair Rd	Lewiston Rd	3,220	D	4,620	F	46,030	F
I-20 WB	I-20 WB at Lewiston Rd Between Ramp		2,851	D	3,930	F	41,029	F
I-20 WB	Lewiston Rd	Appling Harlem Rd	3,030	D	4,160	F	43,390	F
I-20 WB	I-20 WB at Appling Harlem Rd Between Ramp		2,080	C	2,580	C	30,280	D
I-20 WB	Appling Harlem Rd	McDuffie County	2,290	C	2,840	D	33,300	D
I-20 Ramp	WB Off-Ramp at Belair Rd		642	D	1,141	F	7,960	E
I-20 Ramp	EB On-Ramp at Belair Rd		1,520	F	1,179	D	11,321	D
I-20 Ramp	WB Off-Ramp at Appling Harlem Rd		961	F	1,580	F	13,120	F
I-20 Ramp	EB On-Ramp at Appling Harlem Rd		1,631	F	1,431	E	14,091	E
Lewiston Rd	Columbia Rd	I-20	680	D	720	E	11,707	D
N Belair Rd	Fury's Ferry Rd	Evans To Locks Rd	930	F	956	F	15,786	E
Old Evans Rd	Old Petersburg Rd	Washington Rd	825	F	828	F	11,398	C
Old Evans Rd	Martinez Blvd	Washington Rd	851	F	892	F	14,320	E
Old Petersburg Rd	Old Evans Rd	Baston Rd	891	E	861	E	13,364	C
Ray Owens Rd	Newmantown Rd	Richmond County	786	D	801	D	13,689	D
Ray Owens Rd	Shucraft Rd	Columbia Rd	900	E	940	E	16,290	E
Robinson Ave	Wrightsboro Rd	Newmantown Rd	910	E	750	D	11,422	C
Robinson Ave	Wrightsboro Rd	Newmantown Rd	794	E	741	D	11,503	C
Robinson Ave	Newmantown Rd	Richmond County	801	E	660	D	9,812	C
Washington Rd	Old Washington Rd	William Few Pkwy	1,230	F	1,230	F	18,860	E
Washington Rd	William Few Pkwy	Hardy McManus Rd	1,734	F	1,667	F	24,003	F
Washington Rd	Hardy McManus Rd	Blanchard Rd	1,934	F	1,786	F	23,707	F
Washington Rd	Blanchard Rd	Gibbs Rd	1,702	F	1,585	F	20,640	E
Washington Rd	Gibbs Rd	Evans To Locks Rd	1,508	F	1,431	F	19,523	E

Roadway	From	To	AM		PM		Daily	
			Volume ⁽¹⁾	LOS	Volume ⁽¹⁾	LOS	Volume ⁽²⁾	LOS
Washington Rd	Evans To Locks Rd	N Belair Rd	1,131	F	1,178	F	15,686	D
Washington Rd	N Belair Rd	Belair Rd	1,847	F	1,874	F	27,497	F
Washington Rd	Old Evans Rd	Owens Rd	1,960	E	1,995	F	28,827	C
Washington Rd	Owens Rd	Flowing Wells Rd	1,950	E	2,001	F	29,483	C
Washington Rd	Flowing Wells Rd	Columbia Rd	1,717	E	1,739	E	26,077	C
Washington Rd	Columbia Rd	Bobby Jones Expy	3,042	F	3,021	F	42,896	F
Washington Rd	Bobby Jones Expy	Davis Rd	1,943	F	1,847	E	26,447	C
Washington Rd	Davis Rd	Baston Rd	1,956	E	2,096	F	32,751	D
Wheeler Rd	Belair Rd	Flowing Wells Rd	755	E	569	C	8,905	C
Wrightsboro Rd	Chamblin Rd	Harlem Grovetown Rd	1,200	F	1,220	F	16,930	E
Wrightsboro Rd	Robinson Ave	Horizon South Pkwy	1,024	F	924	E	13,620	C
Wrightsboro Rd	Horizon South Pkwy	Reynolds Rd	1,072	F	1,032	F	15,350	D
Wrightsboro Rd	Reynolds Rd	Richmond County	1,127	F	1,085	F	16,386	D

(1) - Segment volume is the weighted average of link volume by distance; peak direction volume

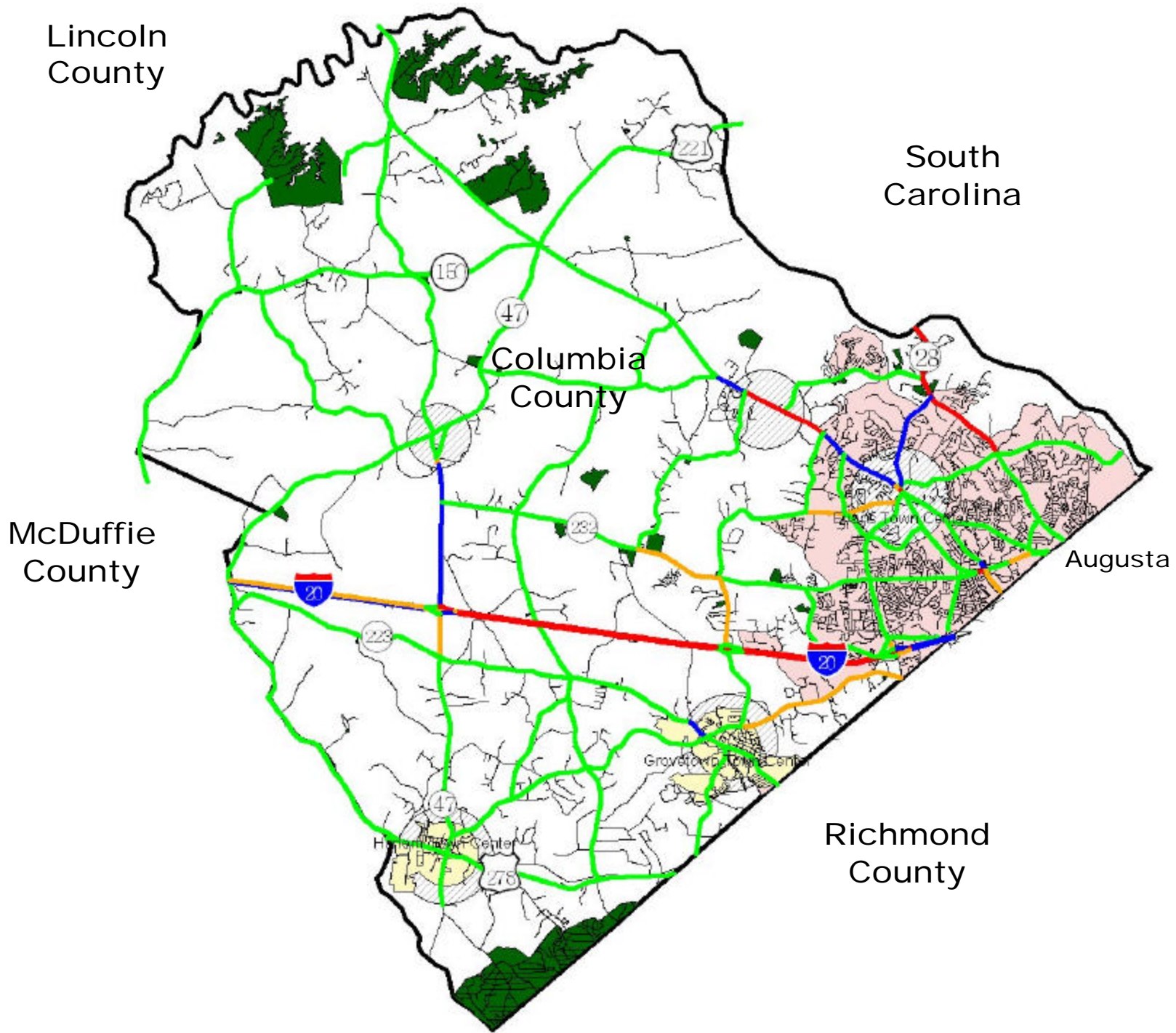
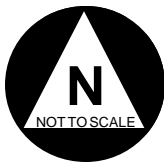
(2) - Two-way volumes

Figure 11.2.1 and Figure 11.2.2 present the future peak hour and daily deficient segments along the existing plus committed roadway network.



- Legend**
- Level of Service
 - LOS C and Better
 - LOS D
 - LOS E
 - LOS F
 - Local Roads
 - City Boundary
 - Town Center
 - Urbanized Area

Note: AM and PM Peak Hour Conditions are highlighted in the figure above.



- Legend**
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12.0 Summary

Due to population growth in Columbia County and the resulting increase in travel demand, the Georgia Department of Transportation (GDOT) Office of Planning in conjunction with Columbia County initiated a study to develop a Long Range Transportation Plan (LRTP) to serve the entire County through the planning horizon, 2025.

The next step in the long rang transportation plan process is to address these deficiencies with improvements. Cost estimates for these projects will be conducted and a screening process will evaluate the improvements, resulting in a prioritized list of improvements.

The end product for this study will be a Long Range Transportation Plan (LRTP) that provides for the efficient movement of people and goods within and through Columbia County through the horizon year of this study (2025). Interim year analysis will be conducted for the years 2007 and 2012. As part of this effort existing and future operating conditions were documented for the following modes: highways, bicycle and pedestrian improvements, freight, transit, railways and airports.